The Builder.

Vol. XLIX. No. 2218 SATURDAY, AUGUST 8, 1885.

ILLUSTRATIONS.

Design Submitted by Mr. J. P. Seddon, F.R.I.B.A., in the Competition for the Proposed Baptist Memorial Church at Paisley: Interior View 188-189
The Sacristy, Bristol Cathedral: Complete Measured Drawings by R. W. Paul 192-197
Canons Ashby Hall, from Road 200
Sketches in Connexion with Architectural Association Excursion, 1885.—Drawn by Mr. T. Garratt 201

CONTENTS.

London Gardens and Playgrounds 177
The Proposed New Charter for the Institute 178
The Late Professor Donaldson 179
Notes 180
Slough Public Hall and Institute Competition 181
The Derby Meeting of the Royal Archæological Institute 182
The Plumbers' Company 185
Excursion of the Surrey Archæological Society 186
Design submitted in Competition for Paisley Baptist Memorial Church 186
The Sacristy, Bristol Cathedral 186
Canons Ashby and Middleton Cheney, Northants 186
English Monumental Effigies 203
Coal-slag as a Building Material 203
Obituary 204
The Builders' Accident Insurance (Limited) 204
Contractor and Sub-contractor 204
Lines of Frontage 204
The Improvement of London Masonry 204
Proposed Bridge across the Thames at the Tower 205
Church-Building News 205
Books: Crosby Lockwood's "Pattern-making: a Practical Treatise, embracing the main Types of Engineering Construction"; "Hydraulic and other Machinery" 206
Recent Sales of Property 206
The Student's Column: Descriptive Geometry.—Part II. 207
Recent Patents 208
Ceramic Decoration at the Chiemsee Palace 208
Miscellanea 208
Prices Current of Materials 209

London Gardens and Playgrounds.

IF there is one movement, more than another, that has made its mark upon latter-day London, it is that most excellent and practical philanthropy, which has resulted in obtaining and laying out open spaces for the comfort and health of the five million inhabitants of the metropolis. Though that movement has been carried out in the most quiet and unostentatious manner, it has become patent even to those persons who usually go about with their eyes shut, but who can scarcely fail to notice that London at this day possesses far more air, light, flowers, and trees than was the case half a dozen years ago. We cannot all be possessors of land under the present dispensation, wherein each man may sit under his own fig-tree; but we may all, down to the very poorest and smallest amongst us, be sharers, to a more or less extent, in God's fresh air and sunshine; and we cannot doubt that, to enable the people to enjoy these at their own doors, is one of the highest forms of Christianity.

If we take an aggregate of London's open spaces, its parks, its gardens, and its squares, excluding, of course, everything to which the public has not free access, we shall find that this aggregate is as surprising as it is gratifying, and brings us to the conclusion that there is no city in the world which, in proportion to its size, is better off in this respect; and, although it is true that there are plenty of plague-spots to be rooted out, their evil influence is greatly neutralised by the near neighbourhood of verdure and flowers. Putting aside the question of actual sanitation, few will deny the moral effect produced by the possession of a garden; for even Bill Sykes would scarcely choose such a locality for hatching his burglarious schemes. Probably but few people have any idea as to the extent of London open spaces, and it may be worth while, therefore, to give a brief *résumé* of them, including those which, though outside the metropolitan area, are yet within the compass of a walk or a short railway journey. At the same time it must be remembered that the advantages of a thousand acres of the prettiest park, which it takes half an hour or so to reach, are not to be compared with the plot of garden five minutes away, where the weary mother may rest a while from her household troubles, and the children exchange the heated air of the courts and alleys for something cooler and purer.

The London open spaces may be thus divided:—

A. Public parks in and around London.
B. Commons, greens, and squares.
C. Cemeteries.
D. Churchyards and disused burial-grounds.

Under the first two headings we find that there are over 15,000 acres, the principal items of which are as follows:—

	Parks.	Acres.
W.	Hyde Park	390
	Kensington Gardens	310
N.W.	Regent's Park and Primrose Hill	400
N.	Finsbury Park	115
S.E.	Dulwich Park	72
	Southwark Park	63
	Greenwich Park	174
	Kennington Park	12
E.	Wanstead Park	182
	West Ham Park	80
	Victoria Park	300
S.W.	St. James's Park	83
	Green Park	71
	Battersea Park	250
	Kew Gardens	270
	Richmond Park	2,255
	Bushey Park	1,100
	Total	6,127

The commons, most of which are under the care of the Metropolitan Board of Works, or the Corporation, are even more extensive, the largest acreage being found at

		Acres.
E.	Epping Forest	5,348
	Well-street Common	30
	London Fields	27
	Clapton Common and Mill Fields	66
	Hackney Downs	50
W.	Wormwood Scrubs	190
	Shepherd's Bush and Brook Green	14
	Ealing Common	—
N.W.	Hampstead Heath	240
	Stoke Newington Common	5
	Hadley Common	250
S.W.	Tooting Beck and Eelbrook Common	225
	Clapham Common	220
	Wandsworth Common	160
	Wimbledon and Putney Commons	1,000
	Barnes Common	100
	Sheen and Ham Commons	—
S.E.	Blackheath	267
	Bostall Heath	55
	Plumstead Common	110
	Croydon and Caterham Commons	347
	Peckham Rye	64
	Total	8,748

making, with the parks, over 15,000 acres.

Next in size come the greens, recreation grounds, and the gardens of those squares which, by the good offices of the Metropolitan Public Garden, Boulevard, and Playground Association, have been thrown open to outsiders, and which amount in the aggregate to some 100 acres or so. The value of these, however, must not be gauged by their individual size, but by their being dotted here and there around and throughout the metropolis. The chief of these are (S.W.) Parson's Green, Hampton Court, Chelsea Hospital, and Ebury-square; (N.), Canonbury-square, and Islington-green; (W.), Paddington-green, Leicester-square, the Embankment-gardens (13 acres); (S.E.), Camberwell and Goose Greens, Sydenham Recreation Ground (17 acres); (E.), Horsemonger Lane Gaol, Poplar Recreation Ground, Brewers'-gardens, Silver-street playground, Long-lane, Smithfield, &c.

The cemeteries, although undoubtedly coming under the head of open spaces, many of which are of great extent, can scarcely be included as places for popular recreation, partly from the nature of their contents and associations, and partly because they are more or less private property, to which the public is admitted by courtesy. Nevertheless, as areas upon which the profane builder cannot intrude, the cemeteries are most valuable as adding many hundreds of acres to the breathing capacity of London. The principal of these are at Hampstead, Highgate, Kensal-green, Abney Park, Camberwell, Hanwell, Brompton, Nunhead, Norwood, Southgate, and Finchley, that of Woking being too far to take into account as a London open space. It cannot be said, therefore, that the metropolis is deficient in popular areas, though it is true that these are not always to be found where most wanted. Here it is that Lord Brabazon's excellent society has done, and is doing, such admirable work, and more especially in ferreting out the numerous little burial-grounds and City churchyards, and transforming them from dark, dismal caverns into light and airy gardens, made gay with flowers and turf. A table compiled by Miss Gladstone, the honorary secretary of the Association, shows that there exist, or have existed, within the metropolitan area, no less than 404 burial-grounds, of which forty-two are open to the public during the day-time, being laid out as gardens or otherwise improved. The remainder are thus accounted for: (1) 27 are disused burial-grounds that have been turned into private gardens, store-yards for builders' materials, &c., or have been asphalted and taken for the playgrounds of special schools; (2) 97 have been demolished for the widening of roads and pavements, and the making of new streets, or else have been occupied by public buildings and railway lines; (3) five have been offered as building sites, but have not yet been built upon; while (4) 210 are closed to the public, though, of course, not now used for burial.

Under the category (B) of burial-grounds occupied by buildings, a good many are now covered over with railway stations or dock

premises, to which no objections could be raised on sanitary grounds, or else with public buildings, such as the Law Courts, the National Gallery, &c.; but it rather "gives us pause," when we find how many dwelling-houses, and those generally in the most crowded neighbourhood, have been erected on the sites of graveyards. In E.C. district, for instance, three separate portions of Queen Victoria-street are built upon the burial-grounds of St. Mary Mounthaw, St. Nicholas Olave, and St. Mary Magdalen. As the greater part of this street is used as shops and warehouses, and not for purely residential purposes, this does not so much matter; but other portions of the district are not so fortunate. The Plague-pit in Cripplegate, the Friends' burial-ground in Bunhill-row, the Pest fields of Hand-alley and Old-street, are all covered with artisans' dwellings, and the same occurs frequently in E. district, where the Shoreditch burial-ground is occupied by almshouses, and the one in the Whitechapel-road by the workhouse. These conditions, it is to be presumed, cannot now be altered, and we would therefore turn with the greater satisfaction to the cases in which Lord Brabazon and his associates have been successful in letting in light and fresh air to some of the dreariest spots in London. The Horsemonger-lane Gaol, or rather, half of its site, was leased to the Metropolitan Public Garden, Boulevard, and Playground Association, by the Surrey magistrates, from January 1st, 1884, and laid out as a children's playground at a cost of 356*l.*, and an annual maintenance of 85*l.* It is pleasant to think that over 2,000 little ones daily amuse themselves on this spot, which was formerly a frowsy prison, in which the prevailing sounds were the oaths and the sighs of the inhabitants. Amongst the more prominent works of Lord Brabazon's Association, either finished or in progress, are the opening of the following churchyards, squares, and burial-grounds:—The churchyards of Christ Church (Battersea), West Hackney, St. Bartholomew's (Bethnal-green), St. Philip's (Avondale-street, S.E.), St. Clement Danes, St. Martin's Vintry, &c., Canonbury-square, Ebury-square, Carlton-square (Mile-end), Red Lion-square, Trafalgar-square (Mile-end), Northampton and Wilmington-squares (Clerkenwell), Hoxton-square, Soho-square, Walcot and St. Mary's squares, S.E., Trinity-square, E.C.; of burial-grounds, Paddington-street, St. Dunstan's (Stepney), St. Anne's (Limehouse), All Saints (Poplar), St. Luke's (Chelsea), Holy Trinity (Gray's Inn-road), St. James (Hampstead-road), St. Peter (Newington), St. James (Bermondsey), St. Mary-le-Strand (Drury-lane), St. Mary's (Lewisham), East London Cemetery, &c. The cost of these gardens, already incurred and for which estimates have been obtained, is considerably over 12,000*l.* Amongst some of the more ambitious undertakings set on foot by the Association and looming in the distance, are the formation of a boulevard on the Main Drainage Embankment at Stratford, and the obtaining as a public garden and park of the Ravenscourt Estate close to Hammersmith. Few people have the slightest conception of the difficulties that attend the throwing open of even the smallest and most insignificant burial-ground, of the existence of which probably not one person in half a million is aware. The finding out of the responsible trustees or owners, the investigation of the titles, the vested interests and complicated claims that have grown up in the course of centuries,—and, when all these are disposed of, the actual expenses (often very considerable) which attend the transformations,—are matters that demand the most extreme patience and perseverance on the part of those that have so willingly undertaken them. It is to be hoped that the last item, at all events, that of the money required for this good work, will never be allowed to languish until every churchyard and burial-ground in London is made into an oasis of light and brightness.

The British Association for the Advancement of Science will meet this year at Aberdeen.

THE PROPOSED NEW CHARTER FOR THE INSTITUTE.

THE Council of the Royal Institute of British Architects have taken the important step of asking for the sanction of the general body of members to an application to the Crown for a new charter, the suggested form of which is now in the hands of members, accompanied by a circular letter from the secretaries drawing attention to and defining the reasons which have induced them to take this step.

The reasons for taking this step are thus set forth in the first paragraph of the secretaries' circular:—

"It has long been felt that the existing Charter is insufficient to satisfy or even meet the requirements of the present time, and this feeling has found expression on several occasions, more particularly among the Associates, many of whom, even from an early period of the Institute's existence, have complained of the restricted nature of their rights; while the desire of the non-metropolitan members to be placed on an equal footing with their London colleagues in respect to the exercise of voting powers has been often evinced. These and other important matters were discussed by the Special Committee appointed in 1875 to report on the financial condition of the Institute, and the best mode of increasing its efficiency. That committee, in a well-considered report, recommended that the status of Fellows should be raised, and that additional privileges should be given to the class of Associates,—that they should be allowed to vote at general meetings, and to be represented on the Council; also that in the election of the Council non-metropolitan members should be permitted to vote by proxy. The committee made it clear that the existing Charter interfered with all such suggestions, and that, were the Institute to adopt them, it would be necessary to apply for a new Charter."

The matter was carried no further at that time; but the consideration of the subject was further stimulated by a memorial in 1882 from the Manchester Society of Architects, praying "that means might be devised whereby the voice of non-present members might be heard at the general meetings in the annual election of officers, and in other matters of importance to the profession"; and the effect of this was supplemented last year by a memorial from 450 associate members, praying that the right of voting might be given to members of their class, and suggesting that the votes of non-metropolitan associates should be recorded by means of voting papers transmissible by post.

Of these two demands, the existence of which has mainly given rise to the feeling of the necessity for a new charter, the demand for a vote by country members who cannot attend the meetings seems to us by far the most important, and the one on which there can be the least difference of opinion; if, indeed, there can be any. The country members pay the same subscription as the town members, yet the part they can take in the actual affairs of the Institute is in most cases absolutely *nil*. Even on important occasions, it is not always possible for an architect in the provinces, however practically he may feel interested in the matter to be discussed, to leave his business and come up to town for the purpose of voting or (if he finds opportunity) speaking on the subject; and, if he does, he may very possibly find that the final consideration of the subject is adjourned to another evening, and that, even if he gets in his speech, he cannot give his vote without the expense of another journey up to town. So far from wondering that the Institute does not count a larger number of members among the provincial architects, we are rather disposed to wonder at the long-suffering of so many of the provincial members in year after year subscribing to a body in the procedure of which they are unable to have a voice, and which remains practically a metropolitan institution. The Council have frequently spoken of their desire that the Institute should represent the whole country, but it is not until now that they have seriously proposed the step which is the necessary preliminary towards rendering it so representative, that of enabling provincial members to give a vote in their absence. The precise method in which this reform is to be carried out is not indeed specified in the proposed charter, but a clause is inserted to the effect that, "subject to the provisions of this Our Charter, By-laws shall define and regulate the mode, time, and place of summoning and adjourning General Meetings of the Royal Institute, and shall prescribe the mode of voting at such general meetings, whether in person, or by proxy or ballot, or by voting-papers or otherwise." We presume that the insertion of this clause in the proposed new Charter at all events means business, and that, if the new Charter be granted, this provision will be promptly acted upon.

The matter of allowing votes to the Associates is one on which there may be more reason for difference of opinion. The Associates are, numerically, a very considerable proportion of the members, and include among their members many men of high character and ability, to whom no one would grudge the right of voting, and who will, in process of time, join the ranks of the Fellows. But this division of the members also includes some who have hardly any claim to take an active part in regulating the concerns of the Institute. Some of the Associates are in fact, we have reason to know, of the opinion that they would prefer to renounce the right of voting themselves rather than see it conferred without reservation on the whole class of Associates. The proposition in the new Charter seems intended to fence this new voting power to some extent. It proposes that Associates and Honorary Associates shall have the right to vote at all general meetings, except in votes for the election of Fellows, or the "making, altering, revising, suspending, or rescinding of a by-law." With this limitation we think those who object to the extension of the vote to Associates should be content; and we think the leading Associates should also accept it. Without such a limitation it would be possible for an assistant in an office to sit in judgment on his principal's election as Fellow, and for by-laws to be supported or opposed by those who are not in such a position in the profession as ought to entitle them to interfere in and influence important regulations in relation to professional practice.

The proposed Charter, which has been printed for circulation among members, interleaved with the existing one, commences by a long paragraph reciting, under the cover of a "Whereas," the facts in regard to the evolution and the main conditions of the existing Charter, so that a continuity of history is preserved between the new document and the old. In addition to the two provisions to which we have referred, which constitute the most important and radical innovations, the new Charter contemplates the formal division of members into five branches, viz.,—Fellows, Honorary Fellows, Associates, Honorary Associates, and Honorary and Corresponding Members; classes which at present exist, but are not recognised in the Charter, which contemplated only three classes,— Fellows, Associates, and Honorary Fellows. It is proposed that by the new Charter Fellows must not only have been seven years in practice on their own account, but that they shall have reached the age of thirty years, and after a period of five years from the date of the proposed Charter they "shall have passed such examination or examinations as shall from time to time be required, the examination test to be dispensed with under exceptional circumstances." The examination qualification for Associate members is also, of course, formally incorporated in the new Charter. It is proposed to take powers also for granting a diploma to the Fellows under certain conditions to be prescribed by By-Laws, and also that every Fellow and Associate shall be entitled to obtain from the Council a certificate of membership.

The value of such diplomas and certificates will, of course, depend in great measure on the extent to which the Institute is supported by the whole profession, provincial as well as metropolitan. We have not thought it necessary, or even in every way desirable, to print the proposed form of Charter word for word while it is still *sub judice*. It is in the hands of all the members, and it is they alone who have

power to deal with it. When its form is finally settled and adopted in detail and the new Charter granted (as we have no reason to doubt it will be), then will be the time to bring its finally-settled provisions prominently and fully before the notice of "externs." But in the mean time we may draw attention to the fact that an important step is being taken to bring the powers of the Institute of Architects up to a level with the work which it aspires to accomplish, and to render the fact of membership a test of proficiency, as well as to place the advantages of membership more equally within reach of provincial as well as of metropolitan members. We hope its hands will be strengthened by the accession of many of those who have hitherto stood aloof, reminding them that in strengthening the hands of the Institute they are strengthening their own, as far as the relations of the profession with the public are concerned.

THE LATE PROFESSOR DONALDSON.

THE death of Thomas Leverton Donaldson, which took place on the 1st of this month, at his residence, 21, Upper Bedford-place, after a short illness, involves something more than the loss of an old and much-respected member of the architectural profession in this country. For Professor Donaldson in England, like his late friend Lesueur in France, was the last representative in his country of a race of architects who may be termed the "old gods," a race which represented architectural sympathies and an architectural culture widely differing from that of the present generation, and, in some respects, much broader, deeper, and more complete. They were a race whose thoughts were mainly directed not to the carrying-out of numerous buildings and the winning of numerous competitions, but to the study of architecture as a subject of intellectual interest from the highest point of view. They were familiar with the details of the works of classic antiquity as few are familiar with them now. The scientific and artistic restoration, on paper, of a Greek temple, was with them an object worth the expenditure of their best thought and energy. They regarded architecture as a grand whole; an art governed by the most refined æsthetic rules, yet based on practical and constructive conditions to be always kept rigorously in view. They had little sympathy with the modern escapades of Goths and Queen-Anneists,—those of them who lived to see these escapades,—and viewed them with little respect, as persons who looked down upon such vagaries from the higher standpoint of more strictly cultivated taste and more universal knowledge. "It may be tolerable," says Donaldson in his book of "Architectural Maxims and Theorems,"—"it may be tolerable to omit a usual member of architecture, but it is insufferable to put it in the wrong place." What a sweeping censure would this "maxim" be on many of the new London houses, or the competition designs of Queen Anne tendency, where details swept from all quarters of decayed Classic art are put together, all "in the wrong place," and the more so (apparently) the better, in the minds of the designers, who think to arrive at higher art by a neglect of all the logic of art, by producing works "wild without rule or art," as Milton says of the vegetation of Eden. If there were not in modern practical architecture a sufficient field for the development of a truly Classic and balanced architecture, this could at any rate be indulged in theoretic Classic designs; and Donaldson, who in early youth passed a good deal of time in the French *élevés* at Rome, had fully imbibed that peculiarly French taste for the working out of grand schemes of Classic restoration and Classic compilation. As late as 1876 he published one of those early studies, which had been talked over when he was living at Rome with the earnest band of French students, of whom Lesueur was the sole survivor at the date of this publication. This was the grand scheme for a "Temple à la Victoire," with all the edifices necessary for the celebration of the ancient games of Greece, designed for a site adjoining Mount Ithome, and forming a "monumental" design in the French sense of the word. This essentially French architectural study was in fact published in Paris and the literary matter written in French, which was to Donaldson another mother tongue. We commented on the work at the time of its appearance.

But though Donaldson's executed works in architecture were few and unimportant, and though he thus delighted in indulging a Classic fancy in ideal designs, he was by no means a mere æsthetic architect. On the contrary, one of his special claims to respect lay in the complete and all-round nature of his professional knowledge, and in the comprehensive view which he took of the art of architecture, and the studies and attainments of the architect. And it was this comprehensiveness which gave him such weight and value as an architectural teacher: for it was in this capacity rather than in any other that he helped on contemporary architecture. He was on every possible occasion the eloquent advocate both of a high standard of professional knowledge, and also a high standard of general culture for the architect. In his opening address, preparatory to a course of lectures on architecture at University College (at which he was for a great many years Professor of Construction and Architecture), he distinctly laid down the principle that architecture and engineering were essentially connected—were portions of the same profession; and his lectures and published essays generally bore out this view. His lectures at University College were illustrated by a number of admirable diagrams and views, which subsequently, through his good nature and liberality, became a kind of common property for lecturers, and were borrowed and used over and over again. The versatility of his knowledge and interest on professional matters may be somewhat gauged by running over the list of his contributions to the Proceedings of the Institute of Architects, and to other periodicals, as given in the Library Catalogue. From a very long list we may extract, as indications of the variety of his range, "Examples of Doorways in Greece and Italy" (a separate illustrated work published in 1833): "Substance of an opinion delivered at a Court of Sewers for Westminster"; "Composition in Architecture"; "Geological Phenomena connected with the Origin and Sources of Porphyry, Sienite, Serpentine, and other Rare Marbles used in Architectural Embellishment"; "Observations on the Different Styles of Pelasgic Construction"; "Lime, Mortar, Stucco, and Cement" (Encyclopædia Metropolitana); "Manufacture of Glass, and its Adaptation to Architectural Purposes"; "Polychromatic Embellishments in Greek Architecture"; "Remarks on a certain class of Gallo-Byzantine Churches in and near Perigueux," &c. These form a very small part of the catalogue of subjects treated by him. Among larger works were the supplementary volume to Stuart & Revett's "Athens," in which Cockerell and Kinnaird also took part; a volume of great interest on "Architectura Numismatica," or architectural medals of Classic antiquity; the "Handbook of Specifications"; the "Maxims and Theorems" above mentioned; but the mere titles of these give a very inadequate idea of the mental activity which he brought to bear on the subject of his life's study.

Donaldson was born in the year 1795, and died therefore at the patriarchal age of ninety. He was more actively concerned than almost anyone else in the founding of the Institute of Architects, of which he was a Life Member, of which he was elected President in 1864, and from which he received the Royal Gold Medal in 1851, at the hands of the then President, Earl de Grey. He was an Honorary Member of Council of the Institute, and Foreign Associate of the Institut de France. He was for some time Honorary Secretary for Foreign Correspondence at the Institute, and his fluent command of French not only fitted him very well for this post, but also rendered him a very valuable personal representative of the English profession abroad; and as he was well known and respected among the architects of several European capitals, probably the Institute of British Architects has never been so well, or so much, represented at foreign gatherings as during his hon. secretaryship.

A portrait published in the *Builder* for July 24, 1869, gives a very good idea of Professor Donaldson's personal appearance. He was an excellent speaker (an accomplishment not more common in the architectural profession than in most others), and very keen and trenchant in debate, possessing a good deal of that warmth of temper which often acts as a spur to eloquence, and which some junior members, who thought that, as Johnson said of Richardson, they "could make him rear," were rather disposed to seek opportunities of exciting, by way of putting animation into the debates at the Institute. They were seldom disappointed, at all events; but there was, if our memory serve us, a good deal more animation, *Consule Planco*, in the discussions in that room at 9, Conduit-street, than there usually is now We want another Donaldson.

Since the foregoing was written we have gleaned the following particulars:—

Thomas Leverton Donaldson was born October 19, 1795, at Bloomsbury-square, London, his father being an architect and district surveyor, and heir of entail of Williamshaw, in Argyllshire, and a descendant of the Macdonalds of the Isles. He received a classical education at King Edward VI.'s Grammar School at St. Alban's, of which Dr. Bowen was the head-master. At the age of fourteen he went to the Cape of Good Hope, to the office of Mr. Robert Stuart, a leading merchant there. An expedition being then in course of fitting out to attack the French in the Mauritius, under the auspices of Colonel Butler, in charge of the 87th Regiment, he joined as a volunteer, and he was one of the forlorn hope; but the French capitulated, and bloodshed was averted. Disappointed in obtaining a commission in the regiment to which he had attached himself, he returned to England, and at the age of sixteen he began his architectural studies with his father, and, after studying in the Antique School of the Royal Academy, in 1817 he was awarded the Silver Medal. From the spring of 1818 to the autumn of 1819, he studied and measured the principal buildings at Florence, Siena, Camaldoli, Laverna, Vallambrosa, Assisi, and Naples. After visiting the principal monumental cities of Greece,—measuring, sketching, and taking notes,—he proceeded to Teos and Ephesus, whence he, with the view of fixing the sites of the most important edifices of those cities, returned to Athens. After having completed the measurements of the Athenian monuments, he proceeded to study the Temple of Ægina, and from thence went to the Morea, where he examined numerous places of interest, and his researches at Bassæ were afterwards published in Stuart's "Athens." He also joined in editing a folio work on the Ruins of Pompeii. One of the results of Mr. Donaldson's foreign study was his designing a Temple of Victory which met with the approval of Canova, then President of the Academy of St. Luke, Rome; and he was elected a member of that body, his diploma bearing the signature of Canova, as Prince of the Academy, and the date April 13, 1822. After an absence of some five years, occupied in foreign travel, Mr. Donaldson assumed the practice of his profession in London, and his first work was the Church of the Holy Trinity, South Kensington, he being the successful competitor. Amongst others of his works may be instanced the town mansion of Mr. H. T. Hope, in Piccadilly (now the Junior Athenæum Club); mansion for Mr. H. Hippisley, at Lambourn, Berks; re-fronting Sir John Hippisley's house, near Exeter; the erection of various other houses; University Hall, Gordon-square; Library and Laboratory at University College, and the arrangement of the dome for the Flaxman memorials; Gordon-street Church; Scotch Church, Woolwich; restoration of Lambourn Church; restoration of Wareham Church; the new Scottish Corporation Hall and buildings in Crane-court, Fleet-street; besides very many other works of more or less pretension. In addition

to Mr. Donaldson's strictly architectural pursuits, he devoted considerable time to the sanitary questions of his day, and was a member of a metropolitan Commission of Sewers which preceded the Metropolitan Board of Works. He was also District Surveyor under the Metropolitan Building Act in South Kensington. On his retirement from the professorship at University College a gold medal was struck in his honour by his professional brethren, and presented to him, while two silver medals (the "Donaldson medals") were founded, and are awarded annually to the most successful students of University College. On giving up the active practice of his profession, and ceasing to take an active part in the proceedings of the Institute of British Architects, he presented to that body a gold badge and chain to be worn as a symbol of office by all succeeding presidents. The late Mr. John Whichcord was, if we mistake not, the first President of the Institute to wear this chain.

The funeral took place on Thursday last, at Brompton Cemetery, and was very largely attended by personal and professional friends, among whom may be named, besides the members of the family, Mr. Ewan Christian, President of the Royal Institute of British Architects, Professor T. Roger Smith, Professor Kerr, Mr. William H. White, Sir Charles Hutton Gregory, and very many others. The Institute sent a large wreath of beautiful flowers to deck the coffin of its founder.

NOTES.

AFTER a contest which is said to be without a precedent in the annals of Parliamentary warfare the preamble of the Manchester Ship Canal Bill has been declared by the Select Committee of the House of Commons, which is the sixth Committee that has discussed the Bill, to be proved. Certain conditions, however, were insisted on by the Committee. Among these was the provision that the canal shall be dug through the land, after entering the lock at Eastham, and not partially reclaimed from the Mersey; the object, of course, being not to diminish, even in the slightest degree, the tidal contents of the estuary. The depth to be dredged is to be 15 ft. instead of 12 ft., a manifest improvement, in the interest of the future navigation of the canal itself. The sum of 1,710,000*l.*, being the purchase-money of the Bridgewater Canal and the Mersey and Irwell Navigation, is to be raised before the commencement of the works, in addition to the 5,000,000*l.* required for the capital of the canal itself,—another guarantee of the *bona fides* of the undertaking. Finally, the canal deposit fund of 276,539*l.* is left locked up, and the company are not allowed to withdraw it. This sop to the opposition is regrettable, as, now that the canal is sanctioned, it is the interest of all parties to facilitate its construction in every possible way. The battle of the opponents of the canal has chiefly been fought on the ground of apprehended damage to the navigation of the Mersey. It is to be regretted that a higher public ground was not taken, and that the occasion for sanctioning measures that should clear away the bar of the Mersey, and give a deep water channel up to Runcorn, has been allowed to pass by. To that the Canal Company will have to come, in order to reap the full advantage of their scheme; and in that Liverpool and all the ports of the Mersey are as much interested as Manchester herself.

WHATEVER may have been the nature of the measure Mr. Chamberlain promised to introduce dealing with the subject of preferential railway rates, that gentleman's successor has declined to entertain the question at present. In the meantime, however, several cases have been brought before the courts, and notably one by Messrs. Wilson & Co., of Hull, which raises the whole question of equal mileage rates. Messrs. Wilson do an extensive carrying business with the Continent, arranging through inclusive rates. Their traffic is conveyed *viâ* Hull, and they find that they are being charged higher rates in proportion from certain stations to that port than those in force between the same stations and other ports,—Newcastle, Sunderland, &c. They seek to have this inequality removed by lowering the Hull rates; and this, of course, touches the interests of the shippers at the other ports referred to. The latter have applied to be heard against the proposed reductions, but the Railway Commissioners have just decided that it is unnecessary to hear their arguments, having no doubt that all the facts of the case will be submitted by the original applicants. This incident serves to show the great difficulties to be overcome in dealing with the equal mileage rate question. It seems impossible for such a system to be introduced without revolutionising to a great extent the trade and practice of certain districts. Some would, doubtless, be largely benefited, while, on the other hand, many interests would be rudely disturbed and prejudiced by the change. Exceptional circumstances must necessarily have the effect of calling into existence exceptional rates, and it is useless to expect that all the rates should bear an equal proportion to each other, though, at the same time, it is notorious that many of the anomalies presented by existing rates are quite indefensible, and sadly need reform.

ALTHOUGH it is satisfactory to find that the grave question of colliery explosions is not being allowed to sleep, it is not particularly creditable to science that, in all the many years that the mines have been under Government inspection, no means have yet been devised to make underground workings even tolerably safe. It certainly is disappointing to note that mining lamps are really very little in advance of what they were a quarter of a century ago, for the Davy lamp, once the mainstay of English collieries, is now found to be almost worthless, while the newer inventions are equally unable to cope with any extraordinary outbreaks of gas, these being the very occasions on which a safe lamp is most needed. Deplorable as are the tragedies, such as the recent Clifton explosion, that form such gloomy landmarks in our death-rate, we are, nevertheless, slowly groping our way to better things, if only by the negative process of finding out what does not answer. In two ways, valuable observations have been made, which promise eventually to throw much light on the economics of colliery explosions. One is, the connexion of gas outbreaks with the tremors of earthquake action, and though, of course, these cannot be prevented happening, they can, to a great extent, be guarded against by carefully noting the barometer. The other is, that coal dust, always a plentiful accompaniment underground, is now recognised to be of a highly explosive nature; and it is quite probable that, even if an explosion is not initiated by it, it is very much aggravated. This danger can always be reduced to a minimum by keeping the galleries watered, and thus checking accumulations of dust. As to the lighting of the working faces, we see nothing for it but the electric light, which, in some of the large pits in South Wales, is already sufficiently developed to be a success. The difficulty of deciding which is the safest colliery lamp is an ever-present one with the coal owners, and is often greatly enhanced by the action of the workmen, who are frequently utterly unreasonable, as shown by a strike at a a northern colliery a week or two ago, the gravamen being an order that naked lights should not be used. Colliers are, as a rule, remarkably clamorous for more inspection and legislation, while, by their own recklessness and disregard of rules, they contrive to bring on catastrophes far beyond what would happen in the ordinary course of events. As long as some pits are allowed to be worked with naked lights, from their reputed safety, while others, being fiery, are obliged to use lamps, so long will these accidents occur; and we are convinced that, humanly speaking, the electric light offers the greatest immunity from danger.

THE Vicar of All Saints, Clapton, has put forth an urgent appeal on the subject of the continued poisoning of the River Lea by the undiluted sewage of Tottenham. In presence of the ravages of the cholera, now claiming some 1,500 victims a day in Spain, the supineness of our legislature and administration, in allowing the continued pollution of the Thames and of this great affluent, is little less than an invocation of pestilence. Schemes like those mentioned in our last number, however feasible, entirely fail to meet a case of daily danger such as that described by the Rev. B. Meredyth Kitson, in the *Standard* of the 31st ultimo. The direct and absolute defecation of the sewage, and the destruction of the morbific matter, is the urgent need of such populations as those on the banks of the Lea.

THE Metropolitan Board of Works have adopted the resolution, which we mentioned last week was to be brought forward, to make it a condition of the appointment of the new District Surveyors for the Northern Division of St. Marylebone and Bethnal-green East and South Bow, which have been rendered vacant by the transference of Mr. Alexander Peebles and Mr. Thos. Blashill to the Districts of East and West Hampstead respectively, that they shall be prohibited from carrying on the business of an Architect or Surveyor within the boundaries of their own districts. This condition is, no doubt, a salutary one, and is calculated to raise rather than to depress the status of the District Surveyor, but it appears doubtful whether it is in harmony with the intentions of the Legislature, inasmuch as the 37th section of the Metropolitan Building Act, 1885, while forbidding any District Surveyor acting professionally and on his private account for any building within his district, provides that, in the event of his desiring to practise, he shall give notice to the Board, who, it is directed, shall then appoint some other District Surveyor to act in respect of such matter. It seems clear that at the time of the passing of the Act it was contemplated that a District Surveyor might practise within his district, and it may probably lead to inquiry as to the reasons which have induced the Board to depart from a custom which has worked well for a period of thirty years.

HUMPHREYS' HALL, Albert-gate, Knightsbridge, which was destroyed by fire on the 2nd of May last, is about to be rebuilt, under the superintendence of Mr. Spencer Chadwick, and the site of the Sun Music Hall adjoining to the westward added to the premises. At the inquest on the body of a Japanese who lost his life at the fire, the manager of the Japanese Village stated that as many as sixty persons slept in the building on the night before the fire. The Chairman of the Metropolitan Board of Works, on being questioned in the House of Commons by Mr. Onslow, who has always taken great interest in matters affecting the security of the public against fire, and to whom we owe the appointment of the Committee on the Metropolitan Fire Brigade, 1877, stated that on the premises being rebuilt the Board would spare no effort to secure protection for the public, both as regards construction and exits, and we trust that this promise has been redeemed on the part of the Board.

IT is proposed to build a new theatre on the site of the Occidental Tavern, Savoy-buildings, Strand, with an entrance from the Strand. The theatre will accommodate about 800 persons, and will have exits into Savoy-buildings as well as into the Strand. The architect is Mr. William Emden.

THE extraordinary development of inland navigation in America, says an important trade journal, has sealed the fate of the trunk lines which come into competition with the water routes, and is at the bottom of half the railway troubles in the States. As this competition is in its infancy, speculators and investors in American railways will do well to ascertain which lines are duplicated by water

routes and which are not, as it is shown that water carriage costs less than one-third of the lowest-paying rate for carriage by land. In the case of the railways of the United Kingdom the managers have, at a very large expense, attained such a control of the through canal routes as to enable them to strangle the traffic. But the sea remains open, and the competition thus effected, although indirect, has somewhat the same effect as that of the improved inland water transport in America. It looks as if it could only be a question of time for the railways, in self defence, to throw the bulk of their badly-paying mineral traffic on the canals, where it would pay 5 per cent. to the canal proprietors at freights two-thirds lower than those at which it can be remuneratively carried by railway.

THE question of the National Portrait Gallery was the subject of some remarks in the House of Lords last week, when Lord Lamington objected to the proposal to take the pictures temporarily to Bethnal Green Museum, not because they would not be safe there, but because they would practically be considered as safely provided for there, and would never emerge. We fear Lord Lamington's fears are by no means groundless. Sir Richard Wallace's pictures emerged, but then they were private property. In the present chronic dread of our Government of spending anything on art or architecture, there is only too much reason to fear that once safely housed anywhere, however out of the way, there the pictures will be left for an indefinite period. Nevertheless, we shall be glad to see the national portrait collection (the *artistic* value of which, be it observed, is somewhat over-rated popularly) put in a safe place without delay, and not sorry that East London should have an opportunity of seeing more of it. But let it be fully understood that the expedient is only temporary, in order to secure the pictures from risk of fire, and that an adequate and safe gallery ought to be built for them.

THE Vienna *Zeitung*, of the 16th of July, reports that the preparations for an archæological expedition on a large scale are just complete. The object of the expedition is to be the more detailed explorations of the regions of Taurus and anti-Taurus, which have already yielded an abundant archæological harvest. Of Dr. Benndorf's work in Asia Minor and its splendid results for the Museum at Vienna we have repeatedly spoken. For the present expedition we may augur an equally successful issue. It starts under the conduct of the well-known architect and archæologist, Dr. G. Niemann, Professor at the Academy of Sculpture. It is intended that the expedition shall explore the Taurus country thoroughly, and if possible extend its investigations as far as the source of the Euphrates. Whether, as before, it is supported by the liberality of private persons, or depends on a Government grant, the *Zeitung* does not say.

THE thermometric results attained by the German Government, in a boring that they are carrying on near Schladebach, have great interest with regard to the question of the depth to which it may be practically possible to carry the coal mines of the United Kingdom. At the Dukinfield lead mine, at a depth of 2,055 ft., the increase of temperature was 1° Fahr. for every 60 ft. At Rosebridge, near Wigan, is a shaft 2,376 ft. deep, and the temperature at that depth is 92° Fahr. At La Mouille-longe, near Creuzot, 3,017 ft. has been bored, and the resulting temperature is 110° Fahr. At Schladebach the unexampled depth of 4,565 ft. has been reached, and the temperature is 120° Fahr. At a depth of 50 ft. underground the temperature is held to be constant at 50·5° Fahr. The increase of temperature in the German boring is, therefore, at the rate of one degree for every 65 ft., against one degree for 60 ft. at Dukinfield, one degree for 56 ft. at Rosebridge, and one degree for 53·5 ft. at Creuzot. Considering the difficulty of an exact determination of temperature, and the probability that different conducting powers characterise different strata, these results are remarkably consistent. At the German rate of increase, the temperature of boiling water would prevail at a depth of 11,067 ft. At the Creuzot rate of increase the temperature of 92° Fahr., which has been regarded as the highest at which anything approaching sustained labour is possible, is reached at a depth of 2,270 ft., or 176 ft. less than at Rosebridge; the latter mine may, therefore, still be taken as marking the lowest depth wrought or likely to be wrought by the miners.

AMERICA generally contrives to have something big on hand, whether it be a "boom," an exhibition, a tornado, or an engineering operation. The last-named is the sensation of the moment, the occasion being the blowing up of the Flood Rock, a dangerous reef at the entrance of New York Harbour, in the track of vessels coming through Hell Gate, where a similar operation was carried out a few years ago. The disposal of the Flood Rock is, however, a much bigger job, for nine acres have to be blown up, by means of 300,000 lb. of explosives, principally dynamite and "rackarock," another and very powerful form of material. The preparations for this wholesale business have been, as may be imagined, on a formidable scale, no less than 21,670 ft. of galleries having been cut in the reef, together with 13,700 holes, averaging 9 ft. each in length, to be bored upwards. Already 81,160 cubic yards of rock have been removed, the bottom of the main shaft being 50 ft. below the level of the river, with the galleries, from 6 ft. to 12 ft. in height, radiating from it. Considerable difficulty has been experienced in preventing the works from being flooded, at all events, until the proper time for allowing it, which is not until the whole of the mine is loaded with the explosive. This will be performed by packing the rackarock and dynamite into copper cylinders holding about 6 lb. each, the cylinders being then placed in the hole bored for its reception, ready for the firing. The whole of this gigantic blow-up is estimated to cost 1,000,000 dollars, an expense which will be amply compensated by freeing the harbour and entrance from the danger that has so long beset it.

ALL visitors to Bologna should make a point of seeing the Museum, which is one of the best of its kind, and contains many valuable antiquities from Etruscan tombs. Especially interesting to architects is a small courtyard on the ground floor, generally passed over by the unwary, in which is a very good collection of terra-cotta strings, mouldings, and other details. These are mainly portions from existing buildings, and it is possible to sketch in this courtyard most of the good terra-cotta work in Bologna, as it is all arranged conveniently for measuring.

THE mosaics in most of the churches at Ravenna are undergoing renovation; in fact, St. Apollinare Nuova and the Baptistery are the only ones in which a scaffolding is not erected for the purpose. And the latter of these two is threatened. The mosaics in it are not in a good condition, and appear to have been picked off as relics by visitors at their will. There is, and has been for some time (judging from the fact that it is reported in most guide-books), an idea of raising the whole building by machinery. At present it is what might be called an open sepulchre, only surpassed by the catacombs of St. Sebastian at Rome. Ravenna should not be visited by English travellers during the hot weather, as in most of the churches, in which places all the interest is centred, notably St. Vitale and St. Apollinare in Classe, there is stagnant water, which has a horrible putrid smell, within 18 in. of the surface. The drinking water, which is much the same, is also very bad, and if taken, even with wine, produces uncomfortable results.

IF there is to be any attempt to produce an adequate artistic monument to Gordon, we must protest most strongly against the idea, which from recent conversations in the House of Commons appears to be tacitly accepted by the authorities, that such a memorial is to be allowed to dwindle into a mere statue in "pigtail square." As we have already said, the central position in that belauded square is already occupied by the mast-headed admiral, and any other situation for a mere pedestal and statue must be a secondary,—quite secondary situation; and Gordon ought to be second to no English hero of modern times. Mr. Plunket, in answer to a question the other day from Mr. Mitchell Henry, declined to give any assurance that a statue would not be commissioned before the next meeting of Parliament. If the thing is to be done at all we want something better than that. Gordon was the greatest Englishman since Wellington, and we want, if anything is done, a public competition and a chance of evolving a monument that may be a worthy companion to the Wellington monument. To put up a mere statue (and in Trafalgar-square, of all places!) to a man like Gordon would be a miserable piece of bathos. Let him, like Nelson, have a square or place to himself, or find room for his monument in St. Paul's.

SLOUGH PUBLIC HALL AND INSTITUTE COMPETITION.

IN response to a not very tempting invitation the Committee for the above building have received twenty-five sets of designs from twenty-four architects. Mr. F. Albury, of Reading, was called upon to advise in the adjudication of the premiums and in the selection of a design for execution. After careful consideration, he has awarded the first premium of 25*l.* to Mr. Henry A. Cheers, of Teddington, for his design marked "Ægis," which it is proposed to build forthwith. The second premium of 15*l.* has fallen to Mr. T. R. Richards, of King-street, Cheapside, for his design marked "Eton"; and honourable mention has been accorded to Mr. F. Hemmings, of Fenchurch-street, for his excellent design bearing the appropriate motto "To-day." And no one can find fault with the awards. But they show very clearly a common, and perhaps inseparable, inconvenience connected with the competitive system. The instructions say that the class-rooms and caretaker's rooms shall be in the upper part of the building; and the majority of the competing architects have followed the instruction implicitly. But the chosen design has provided for both these services in what is virtually the ground-floor, although shown by the author in what he calls a sub-ground plan.

On the other hand, the majority of the competitors have paid but little regard to the stipulation that the cost was not to exceed 3,500*l.* The selected design may be taken to have observed this condition, for it cubes out at this sum at a fraction over 6d. per cube foot, and it is possible that a plain building with large rooms and scarcely any fittings may be built at this rate. Mr. Cheers has won his position by daring to be original in his plan, which is very compact and very perfect in every respect. The site is an ample one, and the author of "Ægis" has, and as we think wisely, placed his building in the centre of it, leaving air and light on all sides. An ingenious arrangement of external steps gives access to the principal floor, on which the Public Hall, 85 ft. by 35 ft. 6 in. and its accessories, are placed. The entrance vestibule is flanked by ladies' and gentlemen's cloak and retiring rooms, and at the other extremity of the hall there is the usual recessed platform, 18 ft. wide by 10 ft. deep with *artistes'* retiring-rooms and separate means of access. On the floor below, which is only sunk three steps below the pavement level, is a separate entrance-hall with central library and flanking reading-rooms, well planned, well-lighted, comfortable, convenient, and compact. A side entrance leads to three class-rooms on this "sub ground" floor, a "Friendly Societies meeting room, 35 ft. 6 in. by 31 ft., and a caretaker's residence under the platform end of the hall. The design is illustrated by three slight geometrical drawings and a very "telling" coloured perspective, which is by far the most effective drawing in the room. Without wishing in the least to disparage Mr. Cheers's design, or to detract from his well-earned position in the contest, we are bound to say that in our opinion the building will not look nearly so well in execution as it

does in his drawing, and that the exterior architecture will need much revision to render it all that one could wish. The style is very mixed, the detail neither pure nor piquant, and dignity there is none. The roof of the hall calls for reconsideration, for the deep principals which divide it into bays would certainly interfere with the acoustic qualities of the room. These are, however, points which will no doubt receive attention from the architect elect, now that his work is to be carried into execution.

In the design marked "Eton," and placed second in order of merit, the architect, Mr. Thomas R. Richards, has placed his public hall (75 ft. by 41 ft.) across the rear of the site with far less ample and convenient access than in the preceding case. All the main rooms are on one floor, the public hall being separated from the "Friendly Societies'" room by a narrow passage and nests of water-closets and allied conveniences. The main entrance, which by prescription is from Mackenzie-street, is flanked by reading-rooms, one of which is inconveniently separated from the library. The "hall" itself is reached by a passage more than 60 ft. long and 5 ft. 6 in. wide. The class-rooms are placed on the first-floor fronting Mackenzie-street with a secretary's room (a useful addition) and a caretaker's residence. It cannot but be felt that the architect has in this case reduced his chances of success by a close adherence to the terms of the instructions; although he would in any case probably have been excluded by the comparative costliness of the structure. This design is shown by four sheets of drawings; but the author has not included a perspective view. The style is a kind of Queen Anne, but calls for no special notice. The roof of the public hall would offer less obstruction to sound than that of the selected design; but the ventilation of the building has not been so well considered, or, at any rate, is not so clearly shown.

We cannot help feeling commiseration for Mr. Hemmings, whose design, marked "To-day," is far more pleasing as an artistic production than either of the above. The style is that of the sixteenth century of English domestic Gothic, and the materials were to be red brick and half-timbered work. With the exception of a feeble little tower marking the main entrance, the Mackenzie-street front is picturesquely and well designed, and would lose nothing in execution. The interior roofing and joinery generally are quite *à la mode*, quaint, and artistic, and the design would, had the Fates so decreed, have proved a real ornament to the town. There is nothing of a monumental character about it, it is true, but neither is there such about its more successful rivals. We suspect that "To-day" owes its exclusion to its cost, and all we can say is the more's the pity. The public hall is placed longitudinally on the site, approached through an ample vestibule and a (perhaps too) spacious entrance-hall, which gives access to library, reading, and refreshment rooms. The Great Hall is top-lighted, and has a row of windows along one side only. Along the other side runs a corridor, into which two doors from the public hall open (a good feature) and which has an exterior side door. The societies' rooms, class-rooms, &c., are on the first floor, as prescribed. They are singularly well designed and arranged, and would be very handsome and convenient apartments.

"Pro Bono Publico" deserves a few words of commendation for his sensible, straightforward design, shown by well-drawn plans and elevations, both of which exhibit some excellent points. The block of building is placed centrally on the site, as in the selected design, the public hall, library, reading-rooms, &c., being below, and the class-rooms, societies'-rooms, &c., above, on the Mackenzie-street side. The caretaker's-rooms are in the attic. The roof of the great hall is semicircular in section, groined at the platform-end, and boarded throughout. It would almost certainly prove a good room for sound. The retiring-rooms, &c., for the performers, are on an altogether inadequate scale; but that is a defect which could be easily rectified if the question of cost had not once more come in. The exterior architecture is of a Georgian cast, severe, simple, grave, well proportioned, and, of course, symmetrically balanced. Picturesqueness in the accepted sense it does not pretend to have. Coupled Ionic pilasters mark the angles of the upper stage, and divide the bays of the great hall and the order marks properly a single storey in each instance. The walls are crowned with stone cornice and balustrade, and behind this rise steep grey-slated roofs, broken by the leaden-covered dormer of the period, and surmounted by open ventilating turrets of agreeable outline and good detail. The lower portions of the windows open as casements, and above the transomes are divided into small panes by wide sash bars. Every room is well lighted and well proportioned. The fireplaces are in their right places. The chimneys might with advantage be carried up a little higher, and the conventional "pots" on the copings of the balustrades could be dispensed with, and little else is required to be altered. There is a quiet business-like air, almost an academic grace, about the whole which is eminently suitable for the end in view, and makes one regret the circumstances which prevent the erection of a building which would do honour to the town.

"Prêt d'accomplir" sends a quiet and effective design of Late Gothic character, in red brick, freestone, and brown tiles. An open-timbered roof gives the public hall rather the look of a village school, and, indeed, a school-like character marks too strongly the design as a whole. It is an agreeable architectural composition well thought out, and quite unobjectionable from that point of view, but its cost would be prohibitory.

"Albany's" design is shown by a very complete set of drawings; the buildings, however, occupy nearly the whole of the site, and the plan has some radical defects. The elevations are neither very original nor very effective, but they are free from all vulgarity, and so have considerable negative merit.

The author of "Plan" gives a hall 50 ft wide and an open roof with an elliptical principal, which, with 14 in. walls and no buttresses to speak of, would, it is feared, possess but precarious stability, notwithstanding the invisible tie-rod. The large room for friendly societies he has placed under the platform at the end of the public hall. The architecture is modest and unassuming, and that is all.

"V. R." departs from the usual type by placing his platform at the entrance-end of the public hall,—a doubtful advantage. The plan has some good points, and the design, which has decided merit, is shown by a bold pen-and-ink perspective, which is one of the best in the room.

"Advance Slough" would not have advanced Slough's artistic fame, and "Fair Play" must be held to have received what he may be supposed to prize. Of some of the other designs it would not be kind to speak. The committee have succeeded in obtaining at a very small cost the suggestions of many minds, and have engrossed the services of many architects possessed of no mean skill; and, aided by the judgment of an expert, they have selected what all will allow is a good, or one may perhaps even say clearly the best, plan. The architecture, however, wants a leisurely and reviving touch, and this it will no doubt receive in due course. We cannot say whether the design for their "Albany Institute" is a burning question with the good people of Slough or not. The drawings are now on view. "The public may all come up to-day," said the youthful clerk-in-charge. We spent three hours in solitude before the ample array of art, and, up to the time of our leaving, not a single member of the Slough public had responded to the invitation to "come up."

THE DERBY MEETING OF THE ROYAL ARCHÆOLOGICAL INSTITUTE.*

We continue our special account of the Derby Congress of the Royal Archæological Institute, which has been one of great interest, and has been attended in greater numbers than when we last wrote,—a fact no doubt largely due to the fine weather, which continued almost to the end. We resume our narrative at the point where we left off, having already informed our readers of the proceedings of the Congress up to Wednesday evening in last week.

Thursday (30th July) was one of the most interesting days of the entire Congress, being devoted to visits to Hardwick Hall and to its less well-known but not less interesting neighbour, Wingfield or Winfield Manor. The party, numbering over a hundred strong, travelled by special train, placed at their disposal by the Midland Railway Company, to Chesterfield, where carriages and brakes were in waiting. They had not time to visit the Parish Church of Chesterfield, whose tall, crooked spire is so conspicuous a landmark all round. This was the more to be regretted, inasmuch as the church contains some fine monuments of the Foljambes, which would have repaid inspection. A drive of seven miles on a very dusty and hilly road brought the party to the deer-park of Hardwick, above the forest oaks of which tower the battlements of both the older and the newer halls. The older structure is now a roofless ruin, and a large portion of its walls were pulled down when the second hall was built. In other parts, however, the walls stand to tell the tale of needless and wanton destruction perpetrated in order to gratify the pride of that strong-minded lady, "Bess of Hardwick." The part still standing is of the Tudor style, and reminds the travelled visitor of the ruins of Cowdray, in Sussex. High up on the walls in two or three places may be seen the stags or harts, the cognisance of the Cavendishes of Hartington, portrayed above the chimney-pieces of chambers that have long ceased to exist; but that is all, for even the chimneys and gables have passed away. Close by stands, within a cordon of high stone walls, the proud mansion of Hardwick, built in the later Tudor or Elizabethan style, not unlike Wollaton House, Notts, and Charlton House, in Kent, or Bramshill, in Hampshire, though taller than any of them in proportion to its length. It is a little over 200 ft. by about 180 ft., and has at its angles six towers, each nearly 100 ft. high, with an open-work parapet running round the summit, in which figure repeatedly the initials of the builder, "E. S."—denoting Elizabeth, Countess of Shrewsbury. This lady, it should be stated here, was the heiress of the Hardwicks, and she married four times. Her first husband was a plain, untitled gentleman; her second, Sir William Cavendish; her third, Sir William St. Loo or St. Loe; and her fourth the Earl of Shrewsbury. She also built four new mansions; one at Chatsworth, one at Worksop, one at Hardwick, and one at Oulcotes, near Chesterfield, which was not quite finished at her death, when she was nearer ninety than eighty.

The entrance-hall at Hardwick is lofty, but plain and rather cheerless; its walls are hung with some tapestry and a few pictures, including a portrait of Henry VIII., drawn in Indian ink, and said to be by Holbein. The great staircase is massive, heavy, and gloomy, as indeed are most of the apartments. Here the tapestry is of two kinds, the one classical, representing the story of Hero and Leander, and the other a series of hunting scenes, in which the horses and dogs are portrayed with much spirit. From the staircase the visitors passed on into the dining-room, partly panelled with oak, and partly hung with tapestry, on which figures the story of Esther and Ahasuerus. The state-room, which came next, is a fine large chamber, with excellent tapestry, a large state bed, apparently of the reign of James I., and with a curious frieze in plaster. The furniture and hangings here were much admired. In the library, which is the most comfortable and habitable room in the house, are portraits of most of the friends and relatives of the head of the House of Cavendish. "Bess of Hardwick" shows in her face a strong likeness to Queen Bess, a likeness which holds good also in her character. Then there are portraits of two or three countesses and duchesses of Devonshire, including "the beautiful Duchess," Georgiana, whose features are so well preserved in her portrait by Gainsborough; the Countess of Bessborough, Lord Dover, Charles James Fox; Comptons and Cavendishes innumerable, and a charming picture of a former Lady Hartington on horseback. In the corner are the portraits, strangely brought together, of Milton, with his giant intellect, and Jeffery Hudson, the Dwarf, so familiar to readers of "Peveril of the Peak." From the library the party went to what is called "Mary, Queen of Scots', bedroom," but which, of course, she never inhabited, as it was not built till three or four years after her execution. The coverlet of the bed, however, and its hangings were brought from Chatsworth, where she was a prisoner, and the bed also is traditionally said to have been hers. The velvet is black, or, at all events, of a very dark green; and the embroidery was much

* See *Builder*, p. 147, *ante*.

admired by the ladies. The picture-gallery, which was reserved for the last, is a lofty and noble apartment, over 160 ft. in length, and lined from end to end with tapestry, which, however, is almost concealed from view by the family portrait-gallery. Here the most attractive portraits were those of "Mary, Queen of Scots," a full-length, taken when she was in her thirty-sixth year and had been ten years a prisoner, dressed in huge starched petticoat and ruffles, and "Bess of Hardwick," looking as fierce, cruel, and rapacious as she really was. Perhaps the finest portrait in the room is one of Thomas Hobbes, the philosopher of Malmesbury, who ended his days here. Other portraits worth notice are two of the unhappy Lady Arabella Stuart (one as a child), Henry VII., Henry VIII., Edward, Mary, and Elizabeth, James V. of Scotland, and his queen; Mary of Lorraine, Lady Jane Grey, Lady Cavendish, the Earl of Devonshire,—in fact, this long gallery may be said to be an illustrated history of England under the Tudors and the Stuarts. In the chapel, which is a poor and small apartment near the top of the stairs, Mr. Micklethwaite, who acted as guide and interpreter to the party, pointed out a large quantity of ecclesiastical embroidery, sadly faded and worn; it consisted, he said, almost entirely of orphreys taken off the copes belonging to the parish churches round about in the days before the Reformation.

The party afterwards sat down to luncheon in the entrance-hall.

Early in the afternoon, the carriages were in readiness at the foot of the hill, and the party were driven along a hot and dusty road for about eight miles, at the end of which they reached the manor-house of South Wingfield, as it is called, though it might fairly claim to be regarded as a castle. It is one of the finest specimens of the Domestic architecture of the fifteenth century, when the castle was gradually developing into the baronial mansion; and it is of special interest as having been twice the prison-house of the unfortunate Queen Mary of Scots, first in 1559, and again in the last year of her life. The mansion is now a ruin, of which little is standing, except the outer entrance-gate and porter's lodge, the entrance into the inner court-yard, the entrance, and west, north, and east walls of the dining-hall, with its fine undercroft, and the kitchens and servants' apartments. In its proud situation it much resembles Prudhoe Castle on the Tyne, and many of its details recall parts of Knole and Penshurst, and portions of New College and Magdalen College, Oxford. Others have detected in it a fancied resemblance to Queen's College, at Cambridge. The Rev. Dr. Cox here acted as interpreter, and recounted the early history of the building from the days of its first erection, on the site of an earlier and smaller house, by the Lord Treasurer, Ralph, Lord Cromwell, about 1440–45. His symbol of office, a double purse, is to be seen carved in several parts of the house. The property next passed into the hands of the earls of Shrewsbury, one of whom at least, if not two, died within its walls. One of these earls was the custodian of the unfortunate Mary, who is traditionally said to have occupied a suite of rooms on the west side of the inner court, all now demolished. The dimensions and arrangements of the great hall are still clear and plain enough; but the very site of the chapel is a matter of dispute — it was probably, as at Haddon, an external adjunct. A vote of thanks was passed to Dr. Cox for his remarks. Whilst the party were at Wingfield, the sun came out and lighted up the old pile of buildings most opportunely, for up to then the day had been gloomy and dull. The return journey to Derby was effected in good time by a special train on the Midland Railway.

In the evening the members of the Institute gave a reception or *conversazione* in the Museum at the Free Library, to which they invited all their friends and most of the notabilities of the neighbourhood. Lord Percy, M.P., the President, was present, and so was Mr. Beresford Hope, who came down from London specially to join the Congress. While part of the company were promenading the Museum and inspecting the fine collection of treasures which it contains,—partly the property of the town and partly on loan,—Mr. Hope delivered in the lower lecture-room the short address on architecture and archæology with which he had intended to open the proceedings of the Architectural Section on the first night of the Congress. His audience, however, was large, as large as the room could hold, and many were obliged to remain outside. In his address he showed how important a study archæology had grown to be in the course of the last half-century, and how important a part of it architecture, both ecclesiastical and civil, constituted,—quite as important, indeed, as its other branches, History and Antiquities. Architecture, he said, was the great and dominating sign of progress and civilisation, while without architecture the study of archæology was as meaningless as the old antiquary's study of the musty pedigrees of country squires. Passing on to the migratory and peregrinating character of the Institute itself, Mr. Beresford Hope said that, as himself partially a Derbyshire man, he considered that they had done well by coming this year to Derby. It is true that they had in Derbyshire no grand and imposing cathedral, and no castle of the first class, like those which they saw last year at Alnwick and Warkworth, but they had to show here a very magnificent series of parish churches, greatly diversified, and conspicuously enriched with noble monuments to which it would be difficult to find parallels elsewhere within so small a compass. Having referred to a few of the peculiarities of the churches of the county, instancing Ashburne (with its beautiful spire, and chancel and transepts of almost cathedral development; with its grand series of Renaissance monuments to the Cockayne family; and with its clergyman, who dared to restore his church without an architect, "and did it very well"), Bakewell, Repton, Melbourne, Tideswell, Youlgreave, and to the monastic houses of Repton and Dale. He expressed in conclusion his conviction that the Congress would have found more than enough at Hardwicke, Haddon, and Wingfield, to reward them for all their labours in the cause of domestic architecture.

Earl Percy moved a vote of thanks to Mr. Beresford Hope for his address. This was seconded by Mr. Micklethwaite, who, however, took the liberty of dissenting from Mr. Beresford Hope's remarks on the restorations at Ashburne, which he (Mr. Micklethwaite) could not approve in some points,—as, for instance, with regard to the black pointing of the masonry, the scraping of the stones, and the moving about of the monuments, practices which he trusted would not be repeated at the noble church of Repton.

Mr. Beresford Hope acknowledged the vote of thanks in a few words, and an interesting paper was subsequently read by Mr. W. H. St. John Hope, F.S.A., on "Ancient Chalices and Patens in Derbyshire." The *conversazione* terminated at a later hour. On Friday (July 31) the members of the Institute had before them a long day, but the large number of those who joined in the excursion which had been arranged to Haddon Hall and Arbor Low showed that it was regarded as one of the most attractive parts of the programme. Immediately after breakfast a special train on the Midland Railway was in readiness to take them, over a hundred strong, to Bakewell, where carriages and brakes were ready to convey them to the parish church. Here, as at Ashburne, the old Norman work at the west end had been largely effaced by the "restorations" of some forty-five years ago. A very large sum of money, it appeared, had been spent in the erection of a fine and imposing structure, but one in which the new part encroached too far on the old. As the visitors went up to the church, they admired the lower limb of what had once been an early churchyard cross, of Saxon date, the incised ornamentation on it being of a character not unlike that to be seen in South Wales and the Isle of Man. In the church porch is a perfect museum of incised slabs and other monuments, crowded together in unmeaning rows. The interior of the church is furnished with solid and substantial open seats, of the heavy style which came in with the early church restorers, and which is to be seen in perfection in St. Mary's at Oxford. The new ornamental flooring of the chancel was pronounced by Mr. Micklethwaite, in his comments on the church, as very fine of its kind; but it had been gained at the cost of the removal of at least one fine ancient recumbent effigy, which stood in the centre of the chancel when he was there last. He regretted also that so much of new work had been put into the old chancel screens. Mr. Beresford Hope made some remarks on the sumptuousness and costliness of the work done by the vicar, Dr. Edward Balston (formerly Head Master of Eton, and now Archdeacon of Derby), since his appointment to the living. The Baron de Cosson commented, with his usual minuteness, on the very fine specimen of armour to be seen on the monument of Sir Thomas Wendesley,—who fell fighting, in the cause of the House of Lancaster, at the Battle of Shrewsbury in 1403,—in the Vernon Chapel. This armour, he said, could not have been more exactly rendered, and it would repay the closest inspection of every detail. The plate-armour, the shirt of chain mail, the *jupon*, and the collar of "SS." round his neck were each and all beautifully executed. Next him lay the effigy of Sir George Vernon, called, from his magnificent hospitality and for the great personal authority which he wielded, "The King of the Peak," and again, farther to the south, the mural monument of Dorothy Vernon and of her husband, John Manners, came in for some well-deserved praise, as an excellent specimen of its time. The Baron de Cosson also drew special attention to a small, but very elaborate, mural monument to two of the Foljambe family on the east wall of the south aisle, as a singular example of artistic work. It was earlier by some five or six years than the monument of Sir Thomas Wendesley, and scarcely inferior to it in beauty of detail. The ancient parish chest, of old oak, with its huge triple hinges and locks, lying in the Vernon Chapel, attracted much attention. A promise was obtained from one of the officials of the church, in reply to a remark from Mr. George Lambert, that an heraldic funeral shield, lying now loose in this chapel, should be hung safely on the walls.

As soon as the inspection of the church was finished, the party repaired to their carriages in order to drive to Haddon, where they lunched, by special permission of the Duke of Rutland, in the great entrance-hall. Before luncheon, however, they were shown over all the chief apartments of the place; but these are so well known to the general reader, thanks to artists and tourists of literary tastes, that we are spared the trouble of a minute description. The mansion consists, like Wingfield, of two courts, having the dining-hall and kitchen range between them. The original entrance is not that by which the house is at present approached, but stands at the north-east angle, near the higher road, now diverted. The view on entering the court-yard, or quadrangle, is extremely similar to that of the interior of many of the smaller colleges at Oxford or Cambridge, and in many of its details the mansion reminds one of Penshurst and Knowle. Mr. Micklethwaite, who acted as *cicerone* here, told the story of the earlier days of the building, and showed how the estate passed from the Crown to the Peverils, and from them, again, to the Vernons, the heiress of which house, eloping with her disguised lover, John Manners, carried it into the possession of the noble house of Rutland, to whom it still belongs. He pointed out in the great hall the fine specimens of deers' heads on the wall, the minstrels' galleries at the end and at the side, the curious staple in which a man's hand was sometimes placed whilst water was poured down his sleeve if he "did not take kindly to his ale, or was guilty of any other offence to the hospitality of the lord who owned the mansion," as also the massive kitchens, buttery, cellars, and servants' offices, with their array of old tables and kitchen-blocks for mincing meat. It may be mentioned, in passing, that this part of the house is almost as dark and gloomy as a prison. Mr. Micklethwaite next took his party into the long gallery, and pointed out, as especially interesting to architects, the huge oak timbers of the flooring, which, he said, were traditionally all from one giant tree, as well as the rougher logs which formed the staircase. The chimney-pieces, fireplaces, and "dogs" he pointed out as especially worthy of notice, and also the furniture and tapestry of the few state-rooms, which are still kept in their half-furnished state. The best and most comfortable of these rooms, perhaps, is the second or inner dining-room, for the use of the lord and lady, with its deep bay window for chat and conversation. This room is finely panelled, and still has some stained glass in one of its windows. The chapel at Haddon is of special interest, and the visitors made a very minute inspection of its chief features. Mr. Micklethwaite pointed out as specially worthy of notice its high side-light windows, the traces of its rood loft and singing

men's gallery,—thought and said often to be a confessional,—and the painted glass in the windows, which, though put up in 1427, as the inscription states, is still in a fairly good state of preservation. In the east window is the Crucifixion, and on the north side of the chancel is another window, with bold figures of the Blessed Virgin, St. Michael, and St. George. From most of the other windows the painted glass has been removed. He added that the chapel had once some parish rights, that of baptism at least, and probably that of burial also, so that it may be regarded as semi-parochial. Mr. Beresford Hope remarked that it probably was once one of many outlying chapels in the forest, which were served by priests from Bakewell, on account of the large extent of the original parishes, and that, when the great hall was built close to it, it came gradually to serve a double purpose, as a parish chapel and also as a chapel to the Haddon household.

The inspection of the building was followed by a walk through the square trimly-cut gardens, laid out in terraces on the slope of the hill above the Wye, and the party paid a special visit to Dorothy Vernon's Walk of sycamores and yews, which form a grateful shade in summer and must look pleasantly green in winter. Re-entering the house by what is called "Dorothy Vernon's door," they sat down to luncheon in the great hall, the visitors afterwards left in carriages for Youlgreave and Arbor Low.

A drive of about seven miles, nearly all up hill, along the sides of a beautiful valley, brought the party to Arbor Low, a pre-historic monument lying in a field abour a quarter of a mile from the road, four miles beyond Youlgreave. "It consists," to use Mr. St. John Hope's description, "of a circular platform, 173 ft. in diameter, with an outer circle formed of some thirty odd stones, once probably erected and in pairs, but now prostrate and broken. In the centre are several large stones, which may have formed a cist. The whole is surrounded by a vallum with an *inner* ditch—an almost unique feature. There are entrances on the north and south. Close to the latter is a barrow which was opened in 1845, it was found to contain a cist with burnt bones." Mr. Ferguson commented at some length on this curious monument of past ages, comparing it with "King Arthur's Round Table" at Carlisle. Prebendary Scarth also compared it, and in some respects contrasted it, with the remains at Stonehenge and Avebury or Abury, in Wilts; and, after some remarks by Mr. G. Lambert, it appeared to be the opinion of the meeting that it was originally erected to serve the double purpose of a temple for religious rites and a burial-place for some chieftain. This latter view is confirmed by the existence of an acknowledged sepulchral mound, known as Gib's Hill, about 350 yds. off to the south, and till recently connected with Arbor Low by an earthen rampart. It may be gratifying to learn that, whatever may have been its original design, Arbor Low is now scheduled under the "Ancient Monuments Act" of Sir John Lubbock, and that on each side is a little stone pillar, half the size of a milestone, with an inscription, "V.R.," showing that the nation has taken the spot into possession, and that it will never be effaced by the plough or the builder. Mr. St. John Hope adds that Arbor Low ranks in size among the six largest stone circles known; but it is very small in comparison to either Stonehenge or Abury.

Youlgreave Church, dedicated to All Saints, which the party visited on their return journey, is a fine handsome church, externally of Perpendicular character, and with a lofty tower, very much of the type so common in Somerset. The interior of the nave was originally Norman, and much of the Norman work remains. The edifice was lengthened westwards when the tower was added, and the chancel is a good specimen of the Perpendicular style. The font is curious, as having a holy-water stoup attached to one of its sides. Probably it once stood close to the door of the church, and this stoup inside made it unnecessary to place another outside. In the north wall of the nave, near the west end, is a curious little figure of the Norman type, and thought to represent a pilgrim. On the north side of the altar-table is the recumbent figure of a knight cross-legged; but it does not lie in its original position. On the east wall of the north aisle is a piece of carved alabaster, "apparently a combination of reredos and monument." In the centre is the figure of the Blessed Virgin, with the lily and with the Divine Child in her arms; and on either side are a husband and a wife with sons and daughters respectively behind them. In the centre of the chancel is a miniature effigy in armour of Thomas Cockayne, who died in 1488. It is also of alabaster, and carefully and tastefully painted with the heraldic bearings of the family. The restoration of the armour, however, was spoken of by the Baron de Cosson as not very successfully executed, the details being open to much exception. This, he added, was all the more to be regretted, as there were so many fine examples to be copied at Norbury, Bakewell, and other places in the neighbourhood. A vote of thanks to the vicar, the Rev. Mr. Roy, was passed at the suggestion of Mr. Beresford Hope for his courtesy in showing and explaining his church.

Leaving Youlgreave, the members of the Institute again took their carriages for Rowsley Station, where a special train was timed to call for them, and to take them back to Derby; but, as they finished their day more than half an hour before the time laid down in the programme, part of them, including most of the ladies, took tea at the Peacock Inn,—so well known to the disciples of Isaac Walton,—and walked in its pleasant gardens, whilst the rest visited Rowsley Church in order to see the monument (cenotaph) to the first Lady John Manners. The return journey was effected without accident or misadventure, and Derby was reached at seven p.m.

Later in the evening two sectional meetings were held. In the Antiquarian Section (Mr. R. S. Ferguson in the chair), the Rev. G. F. Browne, B.D., delivered an interesting and valuable address on the sculptured stones of Derbyshire, very fully illustrated by rubbings or full-sized drawings of many of the examples referred to. He commenced by referring to the very curious and interesting incised stone which is to be seen on the font at Wilne Church, but which is now discovered to be upside down. Another specially interesting incised stone is that of the well-known Bakewell cross. After giving detailed descriptions of many other notable incised stones in the county, and pleading for their preservation where they happen to be in exposed situations, for they were undoubtedly all of them work of the period of the Mercian kings, Mr. Browne explained the manner in which the various scrolls and other ornamental forms were described and executed, the wearing away of the overhanging portions of the undercut work having thrown a good deal of light on this subject. Many of the stones were of great interest as containing rudely-executed but unmistakable representations of important events in Scripture history, the figures, especially the horses, being very much "out of drawing." It was incidentally mentioned that the occurrence of horses on these incised stones was very rare, and it was asked why the Pictish stones of about the same period should not only be frequently found to contain not only representations of horses, but very faithful and spirited representations, indeed. It appeared that no satisfactory answer could be given to this question. In conclusion, Mr. Browne (who has made the subject of these stones a study for many years) mentioned that he had been commissioned by the authorities of the University Press at Cambridge to collect material for the publication of a work which should give representations of all the ancient incised stones of the country. To that end he had received handsome offers of co-operation from the Cumberland, Durham, and other archæological societies, and he hoped that all such societies would co-operate with him in production of a work which could not fail to be one of national importance and interest.

The Chairman, having expressed the great interest which his local society (the Cumberland and Westmoreland) was taking in Mr. Browne's work, Dr. Taylor moved, and Professor E. C. Clarke seconded, a vote of thanks to Mr. Browne for his interesting discourse, which, he said, was one of unique interest. Mr. Browne had clearly succeeded in showing, by a study of these incised stones, the presence of a Christian feeling in times when it was thought that none existed, and the existence of civilisation where hitherto it was thought that barbarism was paramount. Mr. Browne, by his researches, and by the way in which he had carried them out, had shown himself to be a true archæologist,—a very "geologist of history." All archæologists would look forward with very considerable interest to the publication of the work which Mr. Browne had undertaken to publish.

In the Architectural Section, Mr. R. P. Pullan presided, and the Rev. Father Hirst delivered an interesting address on "The Present Prospects of Archæology at Athens."

Mr. Pullan, in introducing the lecturer, said that Father Hirst would be remembered by many present as having delivered an interesting lecture at the Newcastle meeting of the Institute on the Classical Mines of Northumbria. Since then, Mr. Hirst (who had only lately returned from Greece) had been digging in mines more classical, and among the treasures which had been lately discovered at Athens were the remains of the Temple of Eleusis,—a discovery which was of great interest, inasmuch as that temple was known to differ materially from other temples.

Father Hirst, after referring to the value of residence in Athens for gaining a practical knowledge of Greek antiquities, gave an account of the excavations now in progress, or projected, on the Agora, around the Acropolis, and at the Diplum. He then went on to speak of what he had seen at Eleusis, where the excavations were now approaching their termination. Some ten thousand pounds had been spent upon them by the local Greek archæological society. The most important discoveries made during the past year had been some pre-historic tombs and walls; the latter were of three different kinds,—firstly, polygonal walls of blue Eleusinian marble; secondly, drafted stone walls of a very good appearance; thirdly, a thick unbaked brick wall, 4½ mètres thick. These three varieties of wall had been, without doubt, in existence before the invasion of Greece by Xerxes. It was supposed that some of the walls were used for the enclosure of the sacred area, and others were evidently used for supporting two terraces outside the temple,—one passing due east and another passing due south. The walls were faced only on one side, and filled in with earth and rubble behind. The temple itself is now laid entirely bare, and is found to be laid out in seven rows of six columns each, making in all forty-two. The columns are all of very early workmanship, the style being Archaic Doric. The material of which they consisted was of a common stone brought from the Peiræus or from Ægina. The most remarkable discovery of all has been that of the remains of the pre-Periclean temple, which was burned to the ground by the Persians before the battle of Salamis. This temple is supposed to have been 25 mètres square, and to have had twenty-five pillars, disposed in five rows of five each. The bases of several of these pillars have been found, and their disposition has been clearly traced out. The size of the larger Temple of Eleusis, of which this smaller one occupies but the north-east corner, was about 55 mètres square. In conclusion, the lecturer observed that the Greek society, which had defrayed the cost of these excavations, was very wealthy. The excavations have from the first been under the direction of M. Philios, a learned and intelligent Greek, who represented the Greek Government during the excavations made by Dr. Schliemann at Tiryns.

The Chairman having made a few observations on the lecture, a vote of thanks was given to Father Hirst, and

The Rev. R. C. Manning read a short paper on "Lockers for the Processional Cross." In it he referred to the discovery in certain churches here and there of peculiar elongated recesses in the walls, varying from 6 ft. to 12 ft. or 14 ft. in height, and about 1 ft. in width. It is believed that each of these recesses (of which very few are known to exist, and those chiefly in the Eastern counties) must have been provided with a doors in order to serve as lockers for the processional cross.

A vote of thanks was given to Mr. Manning for his paper, and the section adjourned.

Saturday last was a "carriage-day," and visits were paid to Sawley Church, Dale Abbey, Morley Church, and Breadsall Church. Leaving Derby shortly after ten o'clock, the first point made for was Sawley. The church is dedicated to All Saints, and is remarkable for the completeness of its ancient screen and chancel fittings, which are very massive and substantial, and have not been restored. The church, which is dedicated to All Saints, consists of a chancel, nave with aisles and south porch, and western

tower and spire. According to Mr. St. John Hope, who made a few remarks about the church, the chancel-arch and a fragment of the north wall of the chancel seem to be part of a pre-Norman church. The next work in point of date is the west end of the north aisle, which has evidently belonged to a narrower aisle than the present one. The nave and aisles seem to have been rebuilt a little later. The long-lost Burton Chartulary records that Ralph de Chaddesden built "the chapel of the blessed Mary," when founding his chantry, between 1259 and 1266. The south aisle was the Lady Chapel. The aisle windows very much resemble those of St. Peter's, Derby. The chancel is of Decorated work, but a curious late Perpendicular recess has been built out at the west end of the south side of the chancel, to serve as a receptacle of a tomb. Another curious feature of the church is a solid wall or screen, about 8 ft. high, running across the chancel near the east wall. The space behind it, entered from the chancel by a door on the north side, serves as a vestry. This cross-wall is an insertion, and partly blocks up the old piscina. The chancel was some years ago restored by Mr. Ewan Christian, who, according to the rector, is of opinion that some of the masonry is of Saxon date.

A long and dusty drive having been accomplished, the visitors found themselves at Dale Abbey, where the hermitage, cut out of the face of the rock, and once adopted as a residence by a pious baker of Derby, was first examined. The story of the hermit, as given in a pamphlet entitled "The Hermitages of Depedale, or Notes on the Chronicle of Thomas de Musca, Canon of Dale Abbey," lately published by the Rev. Charles Kerry, is very interesting, and extracts from it were read to the assembled company. The church close by is a singular little building, principally Perpendicular in character, but little of it is to be seen amid the excrescences which smother it. Traces of older work exist. The adjoining house was, until a year or two ago, a picturesque half-timbered structure, with a door connecting it with the church, both house and church being practically under one roof. The old house was demolished in 1883, and a new structure erected in its stead,—a circumstance which called forth very decided expressions of regret from Mr. Beresford Hope and other members of the party. A move was next made for the adjacent ruins of Dale Abbey, the site of which was excavated a few years ago by the Derbyshire Archæological Society. The style of the buildings appears to have been Early Decorated throughout. The arch of the great east window is still standing, and was a few years ago repaired at the cost of the rates, it being stated that so long as the arch existed the inhabitants would be exempt from the payment of tithes. Extensive remains of the piers of the crossing and nave arcade exist, enabling the plan to be very clearly traced. Mr. St. John Hope, who acted as *cicerone*, pointed out a curious effigy of a canon of the order, now in the Art Museum, standing partly over the site of the chapter-house. This museum, by the way, contains some very good specimens of flooring tiles, which appear to have been made here in abundance. The carriages being resumed, the interesting churches at Morley and Breadsall were visited. Morley Church contains a fine series of monuments and some old glass, which is supposed to have come from Dale Abbey, though this statement was received with doubt. Dr. Cox, who explained the church, said that a late incumbent of the benefice (Mr. Fox), who was a good Saxon scholar, was strongly of opinion that the nave arches were pierced through, and supported, Saxon walls. The chancel is Decorated. The later work of the church is of peculiar interest, on account of its being dated, a brass in the north aisle to Ralph de Stathum recording the work done by him. The tower was described as "incipient Perpendicular." Breadsall Church, the last item on the day's programme, consists of a chancel, nave with north aisle and south porch, and a tower and spire. The earliest part of the church is the south doorway, which is of Late Norman character. A fine alabaster figure of "our Lady of Pity" was discovered in 1877, and has been preserved. In the clock-room are stowed away the remains of an elaborate rood screen, which it is proposed to restore. The excursionists returned to Derby, and a meeting of the Historical Section was held in the evening, when Mr. H. S. Skipton read an interesting paper on "The House of Cavendish."

But we must break off here, deferring until next week some account of the subsequent proceedings of the Congress, which terminated on Wednesday last.* On the whole, the Congress has been very successful, and the excursions have been largely attended,—being exceptionally favoured by the weather, which remained fine for the whole time up to Wednesday afternoon, when the party returning from the final excursion encountered a steady downpour of rain. If there has been room for fault-finding, it has been found, according to some of the local members of the Congress, in a want of topographical knowledge on the part of the coachmen or their instructors, which has not unnaturally led to needless travelling over several miles of dusty and hilly road.

THE PLUMBERS' COMPANY.

The first meeting of the General Council of this Company was held on Friday, the 31st ult., at the Guildhall (the Right Hon. Earl Fortescue in the chair), to consider certain recommendations of the Court of the Plumbers' Company based upon resolutions passed by the recent conference of metropolitan and provincial plumbers, and having for their objects the improvement of plumbing work in dwelling-houses.

After some introductory remarks from the Chairman,

Mr. R. E. Coles (acting for the clerk of the company) read the notice convening the meeting, and also a number of letters from Sir J. M'Garel-Hogg, M.P., and other gentlemen, apologising for being unable to attend.

Mr. George Shaw (the Master of the Plumbers' Company) read the recommendations of the Court, and observed that the Court had now inaugurated a system which would be of great advantage to those following the trade. At present there was a large amount of plumbing work done by persons who were not properly qualified. By the means of the registration proposed those who were engaged in the building of houses would have an opportunity of knowing whether the persons they employed to do the plumbing work were duly qualified and occupied a recognised position in the trade. What the Court of Plumbers wished to do now was to establish a principle on which they could act in the future. The subject of technical education was an important one, and one which the Plumbers' Company had very much at heart. They had present Mr. Philip Magnus, director of the City and Guilds of London Institute for the Advancement of Technical Education, and he would, no doubt, give the Council some valuable information. The subject of plumbers' work would be dealt with at the next meeting of the Council. He wished to mention that the gentlemen assembled in that room represented the masters as well as the men.

Mr. Philip Magnus observed that it was now five years since the directors of the City and Guilds of London Institute for the Advancement of Technical Education consulted with Mr. George Shaw, the Master of the Plumbers' Company, with the view of ascertaining what would be the most fitting syllabus of instruction not only in the classes in London which they desired to establish, but also in classes in different towns throughout the whole kingdom. Mr. Shaw was good enough to assist them on that occasion in drawing up a syllabus of instruction. It was contained in a publication he had before him, and which was known as their programme of technological observations. Any one who consulted the programme would see the kind of instruction which teachers were expected to give to students in technical classes established in connexion with the Institute, and he was quite certain that if any one would turn to the appendix to the programme which contained the examination questions, he would admit that those questions were of a very practical character, and that any plumber who answered them would not be likely to make the serious mistakes in his work which were so often made. The City and Guilds of London Institute were assisting this cause in another way, by endeavouring to establish every year a class of a more advanced character, in which those engaged in teaching in the provinces or elsewhere might have the opportunity of learning exactly those things they ought to teach, and the manner of teaching them. A class of this kind was opened for the first time this summer in the Institute's building in Exhibition-road, when Mr. Maguire, of Dublin, came up to London and gave a most interesting course of practical lectures. It was, of course, most desirable that plumbers should know something of the principles of science as adapted to the occupation in which they were engaged. They ought to have some knowledge of chemistry, of mechanics, and of hydraulics, but whatever instruction was imparted would not be effectual unless it was practical. He, therefore, thought that every class wherever situated ought to include not only a course of lectures but also a plumber's laboratory. In this laboratory plumbers ought to be able to see the effects of many of the causes on which they worked, they should see the action of air and water under certain conditions upon the metal they had to use; and, besides learning so much of chemistry as might be useful to them, they ought to have an opportunity of learning in this laboratory something of metallurgy and of experimental work. No instruction, be it laboratory or theoretical instruction, could take the place of that which the young man learned from the master plumber, but he might learn in this school what he could not obtain a knowledge of from his master while carrying on his trade. It was in the technical class that he obtained the opportunity of having explained to him the difficulties which would occur in his ordinary work, and gaining the knowledge which would enable him to surmount those difficulties. A student serving his time and while acting as a plumber would at the same time be able to obtain instruction such as he had described, and if he went before the Board of Examiners, composed of practical plumbers, and passed an examination and also gained the certificate of the City and Guilds of London Institute, the public would feel secure in intrusting their work to him.

Mr. George Howell inquired whether others than those who served an apprenticeship of seven years would be permitted to come up for these examinations? He asked this because circumstances had changed very much of late years, and there were many young men who, without serving an apprenticeship, had become very good plumbers through superior ability and paying great attention to the details of the trade.

Mr. G. Shaw (the Master), in reply to Mr. Howell, said that excellence of workmanship and knowledge of the craft would be taken as a qualification for the certificates. Theoretical knowledge would not be sufficient to qualify a man as a plumber. He must have a practical knowledge.

Mr. Smeaton asked whether Mr. Maguire, who was mentioned by Mr. Magnus as having delivered a course of lectures to practical plumbers, was a practical plumber himself.

The Master replied that he understood Mr. Maguire was a practical plumber.

Mr. Howell was anxious that, while doing full justice in the future, they should not do injustice to those who, through their talent and perseverance, had obtained a sufficient knowledge of the trade to qualify them in undertaking and carrying out plumbing work, and so earning a livelihood by it.

Mr. Scott remarked that he was prepared to support the recommendations of the Court of Plumbers. Mr. Shaw had taken care in the observations he had made to show that, at any rate as far as he was concerned, his mind was exceedingly open. But he should also infer from what he said that he and those who acted with him in this matter would be the very last to discourage the feeling in the trade in favour of a practical apprenticeship.

Upon the suggestion of the Chairman the recommendations of the Court were then considered *seriatim*, and after a somewhat lengthy discussion, the following, as amended, were agreed to:—"The establishment of a system of Registration of Plumbers of the City of London and within a circuit of seven miles thereof." "That the register should include master plumbers and journeymen and be open to the admission of those who satisfy the Court of their qualification by either of the following means: 1. Evidence of present status and experience in the trade. 2. Examination by a Board of Examiners composed largely of plumbers, appointed for the purpose by the Court." 3. "The production of certificates of competency granted by the Plumbers' Com-

* On another page, however, will be found a *résumé* of an interesting paper read by the Baron de Cosson on Monday evening, on "Monumental Effigies."

pany and the City and Guilds of London Institute, due weight and consideration being given to the production of indentures of apprenticeship." "The Court will reserve the right to remove names from the register in cases of proved misrepresentation or other gross misconduct, injurious to the trade and the public." "Plumbers admitted to the Register to be entitled to use the letters R.P. (Registered Plumber) after their names."

On the proposition of Dr. Vacher, Birkenhead, seconded by Mr. Scott, Manchester, it was resolved, "That the Council do now adjourn," the consideration of the following business being postponed to another meeting to be held at an early date:—

"The Court are prepared to assist in the organisation of Provincial Boards of Examiners of plumbing work, in accordance with the Resolution passed by the Plumbers' Congress, proposing that such Boards

1. Should be affiliated with a Metropolitan Board.
2. Should consist largely of trained working plumbers.
3. Should be in connexion with Provincial Schools of Plumbing.

The Court have decided to recommend the formation of special classes for instruction for plumbers in the City and Guilds of London Institute and in Provincial Institutions for the advancement of technical education."

A vote of thanks to Earl Fortescue for presiding terminated the proceedings.

EXCURSION OF THE SURREY ARCHÆOLOGICAL SOCIETY.

On Wednesday, July 29th, the members and friends of this Society made its annual excursion. They assembled together at Edenbridge, where light refreshment was taken, and a few members inspected some of the old timbered houses of the end of the fifteenth century in this picturesque village; after which, they proceeded to Lingfield, where Major A. Heales, F.S.A., described the principal features of the church. This consists of a nave with aisles, these extending on the north side coincident with the chancel, and in the south side of the chancel is a vestry of the same date. A tower, flanked with buttresses, is at the west end, with a shingled spire. The greater part of the church was built at the time of the founding of the College by Sir Reginald and Lady Cobham, in 1431, and Major Heales called attention to the lightness and elegance of the pillars and arcades. An elegant oaken screen enclosed the chancel, but of this the western part was barbarously removed at a *restoration* (?) some thirty-five years ago. Accompanying this are many of the old stalls used by the collegiate priests, having on them badges of Cobham of Sterborough, and of Bardolf. Beneath the chancel is a singular crypt-form passage, entered on the north side, now a receptacle for coals, &c. Mr. J. G. Waller then described the interesting series of monuments and brasses connected with the Cobhams of Sterborough. He began by stating, that such monuments being of men who had done good services to the State, and associated with affairs which tended to build up our national fabric, were not to be regarded as mere objects of curiosity, to be looked at and passed by, but ought to be considered as of national concern, and to be religiously conserved. He alluded to the great battles of Cressy and Agincourt, in the first of which Sir Reginald Cobham, the first Baron Cobham of Sterborough, took a grand part, being one to whom the care of the Prince of Wales was consigned; also that he led the van at Poitiers, helped to rescue King John of France from his captors, and conducted him with honour and respect to the Black Prince. He also mentioned his other great services; his embassies abroad, and especially to the Court of Rome; and his being also one of the first Knights of the Garter. One of the features of his tomb is the array of heraldry, not in this case, as is usual, the record of alliances or descent; but, with exception of the personal arms of deceased and that of his wife, and the arms of his son, the armorial bearings are those of companions in arms, personal friends, whose names appear in Froissart associated with his own. Amongst these are those of three Knights of the Garter, viz., Pavely, Mortimer, and Bohun, the whole forming an array of the chivalry of the brilliant era of Edward III. Sir Reginald Cobham was one of the victims of the second pestilence in 1361. The tomb of his son, Sir Reginald, second baron, is surmounted by a fine brass, with a very interesting descriptive inscription in Latin, setting forth the virtues of the deceased. He was handsome, of good manners, generous, brave, wise in council, and hospitable. He died in 1403. Like other members of the great Cobham family, he opposed the power of the Crown during the reign of Richard II., and, in consequence, was obliged to fly the kingdom, taking refuge with Henry Bolingbroke in Brittany, and landing with him at Ravenspurn, at the mouth of the Humber, and taking an active part in his elevation to the throne as Henry IV. The brass of his first wife, Elizabeth, daughter of the Earl of Stafford, though destitute of inscription, Mr. Waller identified by its character, as she died in 1374. Amongst the smaller brasses, now preserved in the north chapel, one to Katherine Stoket was pointed out, as that of a waiting-maid to Lady Joan Berkeley, wife of the first baron, who is mentioned in the will of the latter. One of the most important tombs is that of the founder of the college, Sir Reginald Cobham, and Anne, his second wife, daughter of Lord Bardolf. The figures are of alabaster and finely worked, placed on an altar-tomb built up of the Reigate freestone. The knight is in armour, giving a good example of the time. The lady is as a widow, as she survived him. This Sir Reginald was not summoned to Parliament, consequently the barony ended in 1403, when his father died. A very pretty brass to his first wife, Eleanor Colepepper, lies by the side of his father's tomb. The brasses of the priests of the college were alluded to as being of one general type. Mr. Waller pointed out the tomb of Sir Thomas Cobham and lady, now removed from its original spot, and stated that it had once been opened, and the bones of the original tenants displaced to make room for a Sir John Burrow, whose tablet records him to have specially affected a "convivial character." It is needless to say that he held up such proceedings to general opprobrium. The company thence proceeded to New Place, an old residence of stone, described by Mr. C. E. Powell as being formerly one of much greater extent. The earlier portions of this building, mostly of wood, may belong to the late Tudor period; but the general character of what remains is that of James I., and was built by one of a family of Turner in 1617, judging from a date, with initials G. T., which appear on a doorway to the garden wall. The fine oak panelling of the rooms, untouched by paint, were much admired.

The company then proceeded to Crowhurst Church, which, situated on a rising ground, is a very pretty object. Its fine old yew tree, in the hollow of which once sixteen performers played the Hallelujah Chorus, is now very carefully preserved. Mr. Ralph Neville, F.S.A., gave a brief description of the interior of the church, pointing out the special features of the woodwork of the fifteenth century, and alluding to several of the monuments, especially to one of cast-iron to a member of the Gaynsford family, dated 1591; and Mr. Waller made some remarks on two interesting brasses to members of same family; one to John Gaynesford, sen., 1450, very few examples of this type being extant; and one to his son John ten years later; both worthy of attention as showing the changes in defensive armour in the period of the wars of the Roses. Considerable disappointment was felt that Crowhurst Place, the ancient seat of the Gaynsford family, a very fine old timbered mansion, of which some features were illustrated by the late Charles Bailey in the Society's Proceedings, could not be visited, one of its inmates being seriously ill. Two old farm houses in the immediate neighbourhood, however, the tenants kindly allowed the company to overrun, and much pleasure was afforded by seeing large open fire-places in the kitchen, dogs upon the hearth, with snug seats, making a true chimney-corner, with the "hake" for hanging the cauldron and machinery for turning the spit, of excellent iron-work, and traditional Mediæval ornament. It was a complete picture of the culinary apparatus of our ancestors, and was very suggestive of a capability of performing the rites of that good old hospitality, as hinted at on the brass of Sir Reginald, second baron, in the words, "dapsilis in mensis." The courtesy which allowed an inroad into the privacy of the tenants must not be forgotten. This closed the archæological proceedings of the day, which were presided over by Lord Hylton, in the absence of Lord Midleton, who was unable to attend. The company was very numerous, and the day terminated in the usual festive manner, for which all were well prepared, in the schoolroom at Edenbridge.

Illustrations.

DESIGN SUBMITTED IN COMPETITION FOR PAISLEY BAPTIST MEMORIAL CHURCH.

We give a representation from the elaborate coloured interior view of his design, which was submitted by Mr. J. P. Seddon in the recent competition for the Baptist Memorial Church at Paisley. We commented on the design, with others, at the time the drawings were exhibited (page 9, *ante*). The interior is rich and effective, and well suited for the intended purpose.

THE SACRISTY, BRISTOL CATHEDRAL.

This very interesting piece of Mediæval work, which is not very well known, is carefully and fully illustrated by the measured drawings which we publish this week, made by Mr. R. W. Paul, whose drawings were placed as the second in point of excellence in the competition for the last Architectural Association Travelling Studentship. The finials and other carving are fine examples of late Decorated foliage and ornament; the bosses are finely contrasted, and the crockets on the doorway, apparently suggested by the curled-up leaf of young fern, are curious examples of ornament conventionalised from Nature. The work is sufficiently described otherwise, by the various notes on the drawings.

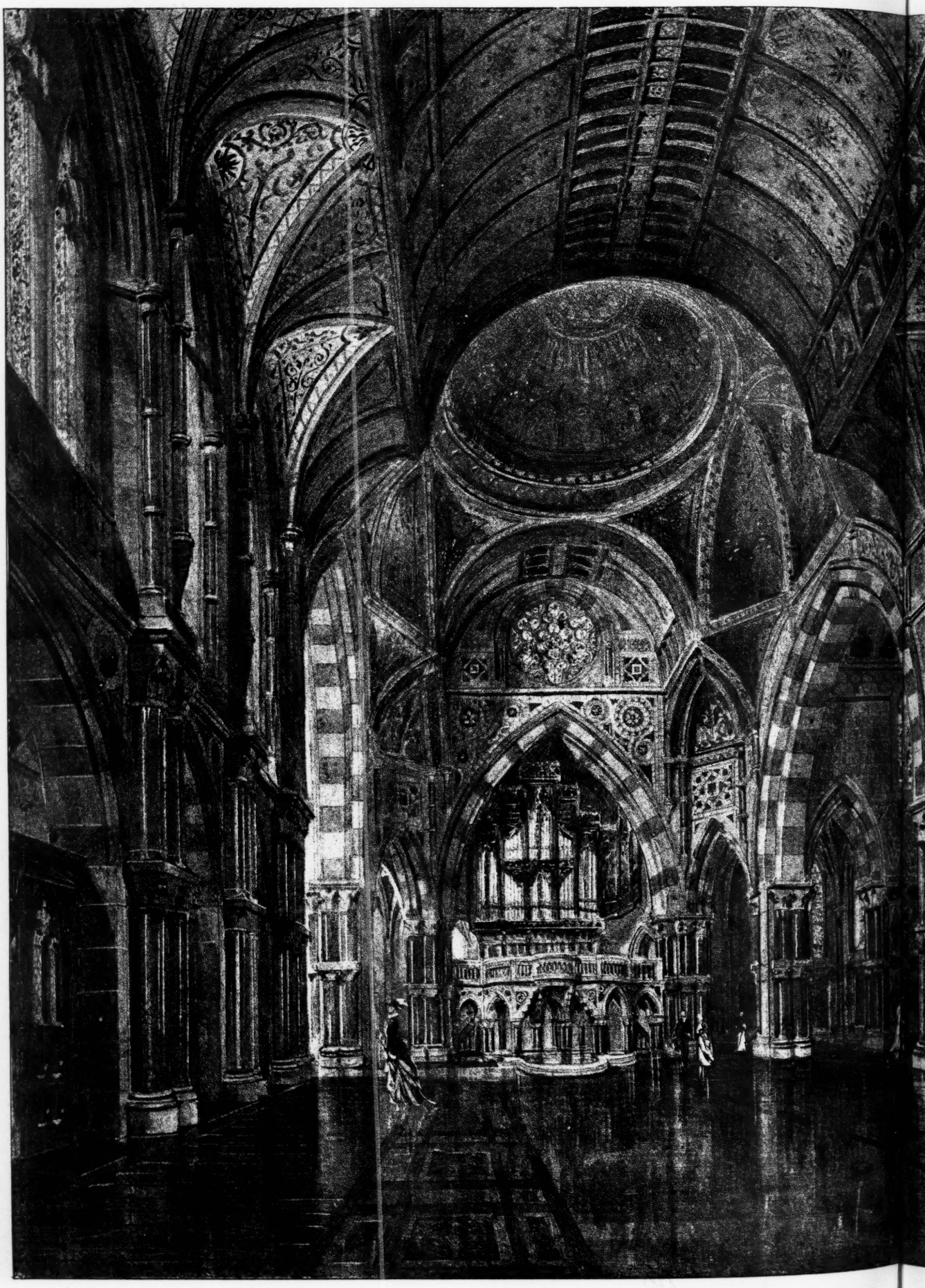
CANONS ASHBY AND MIDDLETON CHENEY, NORTHANTS.

Canons Ashby Hall, in Northamptonshire, the seat of Slr H. E. L. Dryden, Bart., is one of the buildings "on the list" to be visited by the members of the Architectural Association excursion on Tuesday next. Its chief interest is that it is "untouched" and retains so much of the "old life" about it. This is at once noticeable on passing through the low archway on the south side into the small but picturesque court. The hall is on the north side of this court, and a tower on the west side in the north-west angle, in which is the staircase, with its massive oak newels, balusters, and handrail. This staircase is illustrated by measured drawings in the third volume of the new series of the Architectural Association Sketch-book.

The view we illustrate is seen approaching it by the road from the south soon after passing the church. Besides the hall, there are at some little distance from it the remains of a Priory of the Black Canons, but only the tower (a very fine one) and part of the nave of the church now exist, though the foundations of the other buildings can be easily traced. The lower stage of the tower and west end of the church has elaborate wall arcading and a noble west door. The monastery well, of which we give a sketch and plan, is on the north side of the church. The date of it is given as A.D. 1253.

Middleton Cheney has a fine example of a four-light window of the geometrical period in the east end of its chancel (of which we give an illustration); the lines of the tracery are most pleasing, and the mouldings simple but effective. There are other fine windows and a rood screen in this church, and a tower and spire 150 ft. high.

Cambrian Archæological Association.—The fortieth annual meeting of this Association will be held at Newport, Monmouthshire, on Monday, August 24th, and four following days. Lord Tredegar, President-elect of the Association, will deliver an inaugural address, and visits will be paid to Magor Church, Sudbrook Chapel and Ancient Camp, Caerwent, Mathern, Chepstow, Caerleon, Usk, Raglan, Monmouth, Tintern Abbey, Caerphilly Castle, Bassalleg and Newport, where the Castle, St. Woollos Church, and other objects of interest will be inspected and described. Sectional meetings will also be held, and there will be a temporary museum formed.



DESIGN SUBMITTED BY MR. J.
IN THE COMPETITION FOR THE PROPOSED BA

INTERIOR V

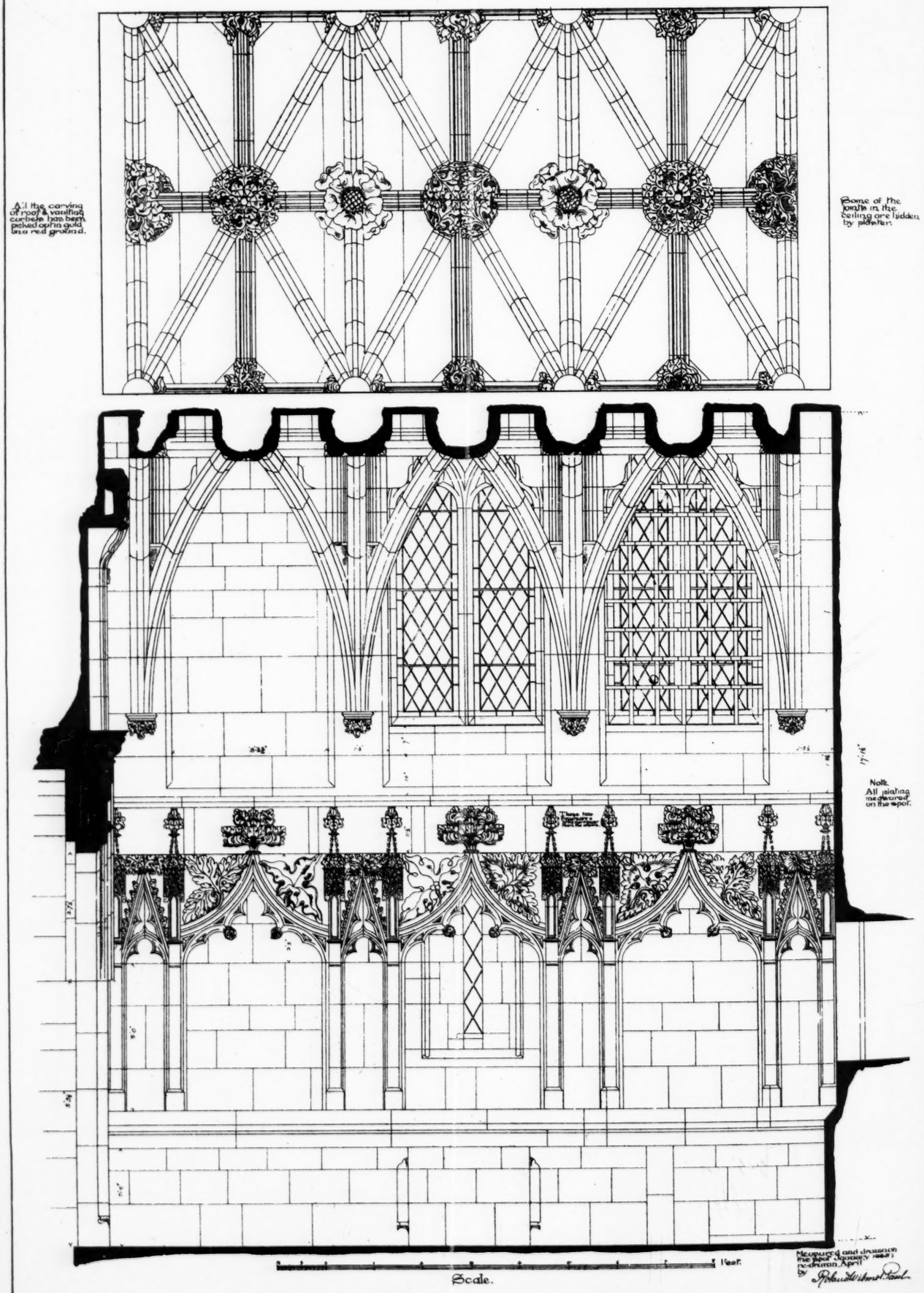
INK-PHOTO. SPRAGUE & Cº. LONDON.

MR. J. P. SEDDON, F.R.I.B.A.,
D BAPTIST MEMORIAL CHURCH AT PAISLEY.
IOR VIEW.

The Sacristy: Bristol Cathedral:

Section looking South and Roof Plan.

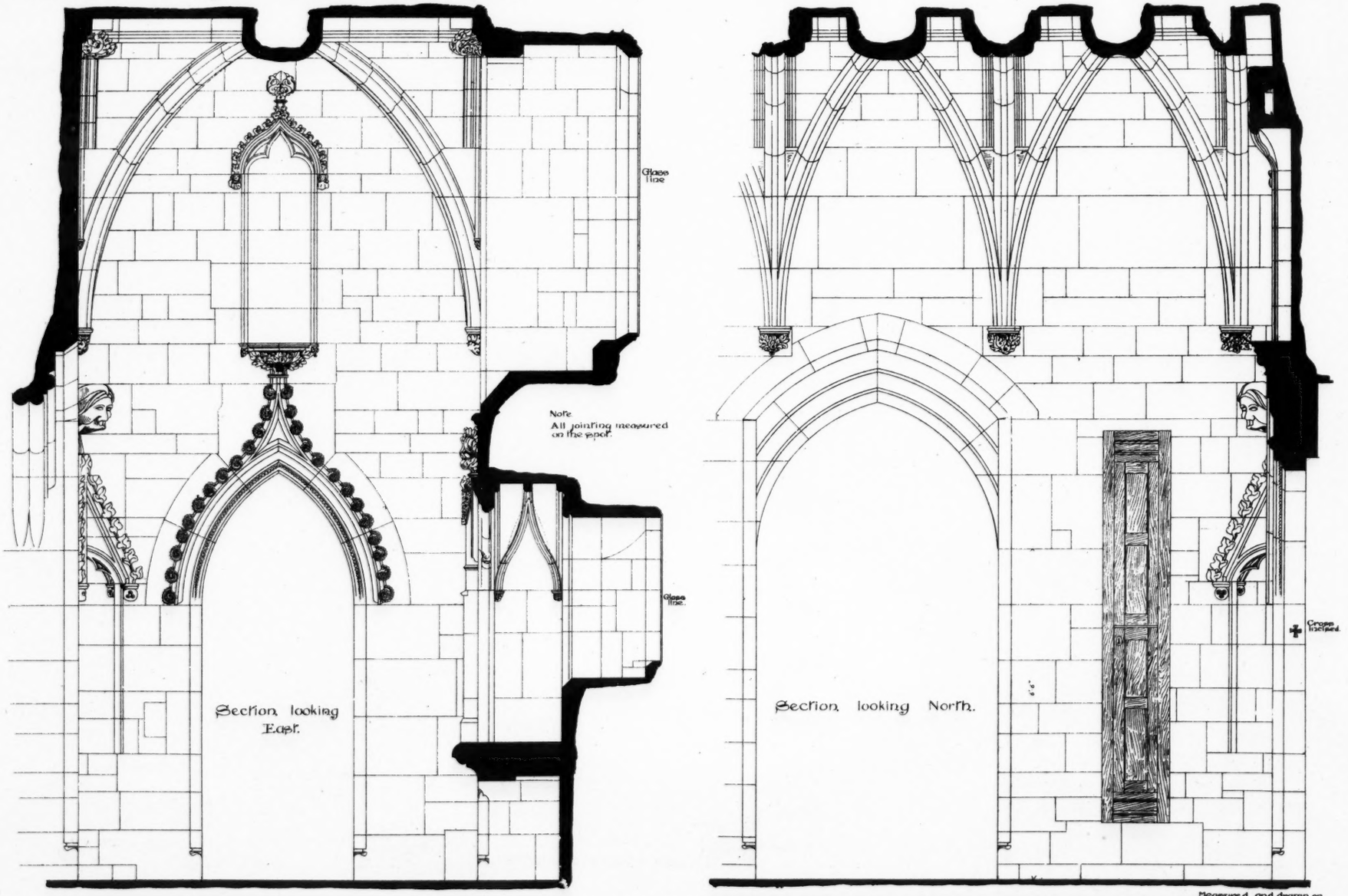
No 1.


All the carving of roof & vaulting cornice has been picked out in gold, into red ground.
Some of the joints in the ceiling are hidden by plaster.
Note. All glazing to be covered on the upper.
Feet.
Scale.

Wyman & Sons, Photo-Litho

C. Queen St. London, W.C.

The Sacristy: Bristol Cathedral:

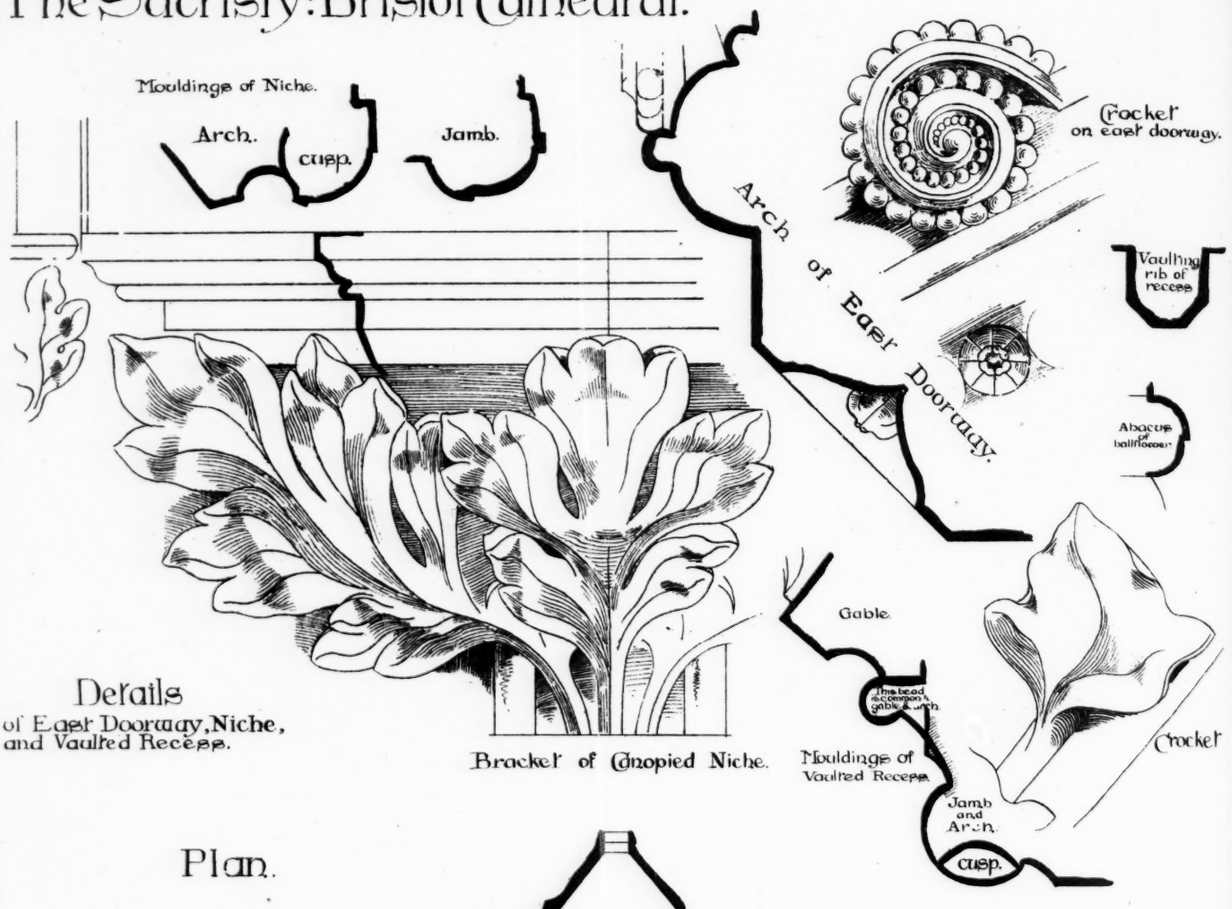


Wyman & Sons, Photo-Litho

C^t Queen S^t London, W.C.

N° III.

The Sacristy: Bristol Cathedral:

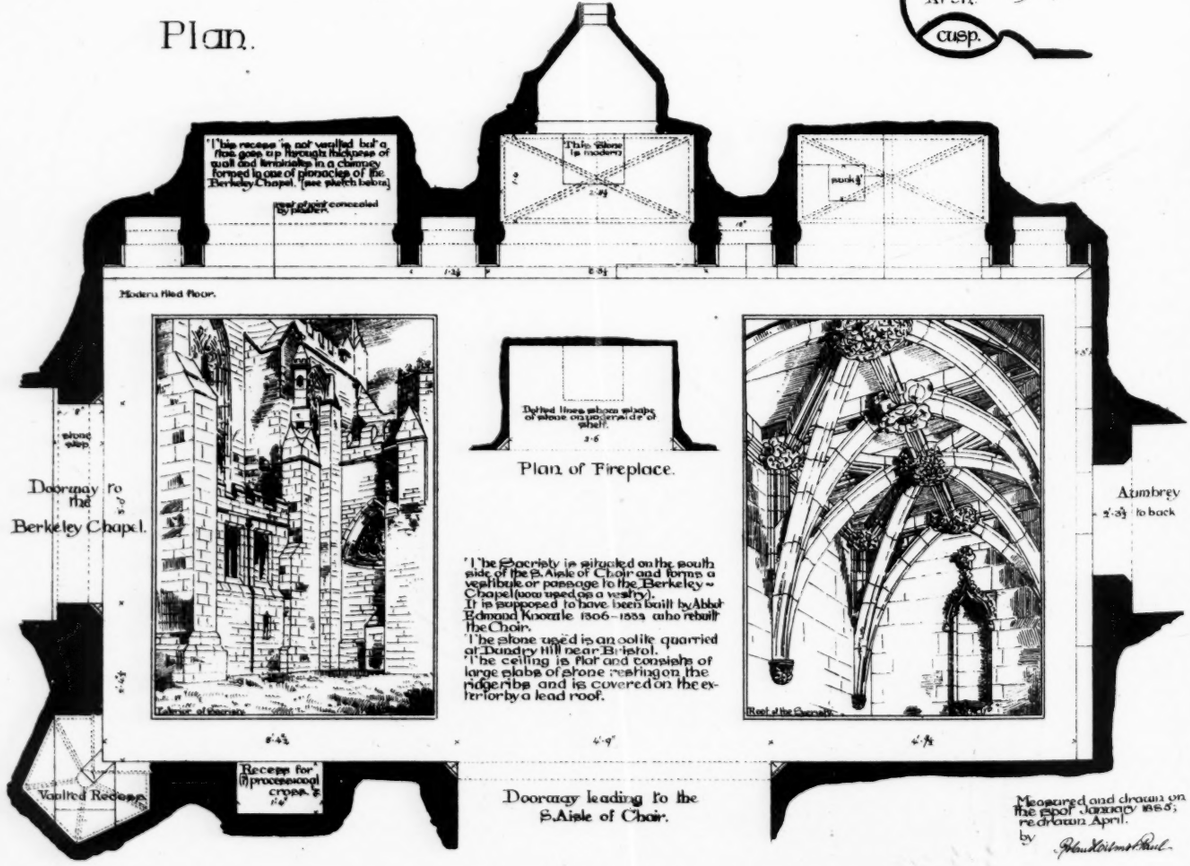


Details of East Doorway, Niche, and Vaulted Recess.

Bracket of Canopied Niche.

Mouldings of Vaulted Recess.

Plan.


"This recess is not vaulted but a flue goes up through thickness of wall and terminates in a chimney formed in one of pinnacles of the Berkeley Chapel. [see sketch below]
This stone is modern
Modern tiled floor.
Doorway to the Berkeley Chapel.
Plan of Fireplace.
Aumbrey
to back
Vaulted Recess
Doorway leading to the S. Aisle of Choir.

'The Sacristy is situated on the south side of the S. Aisle of Choir and forms a vestibule or passage to the Berkeley Chapel (now used as a vestry).
It is supposed to have been built by Abbot Edmond Knowle 1506–1532 who rebuilt the Choir.
The stone used is an oolite quarried at Dundry Hill near Bristol.
The ceiling is flat and consists of large slabs of stone resting on the ridge ribs and is covered on the exterior by a lead roof.

Measured and drawn on the spot January 1885; redrawn April.
by

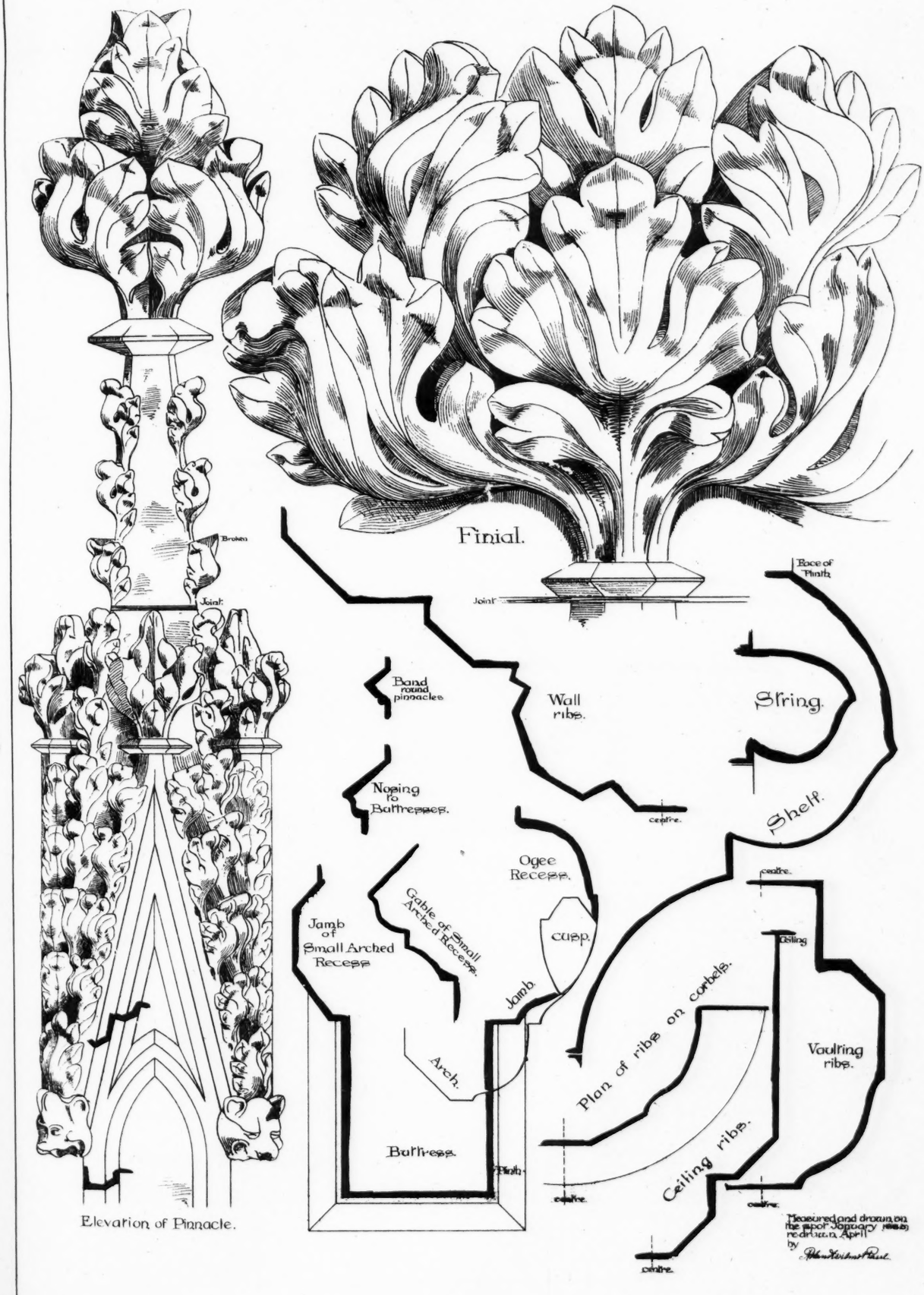
Scale.

Wyman & Sons, Photo-Litho

C^t Queen S^t London, W.C.

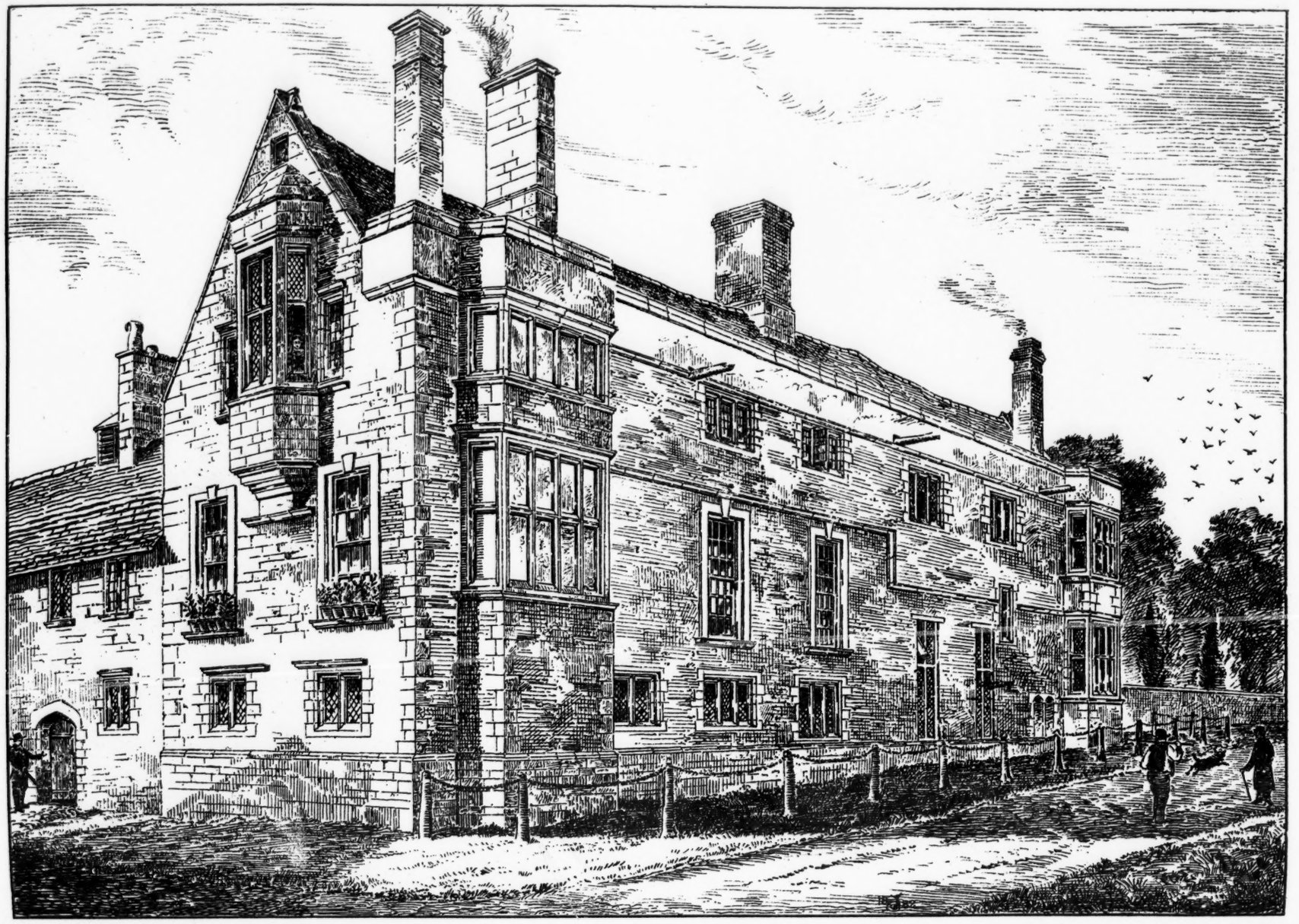
N° IV.

The Sacristy: Bristol Cathedral: Details.



Wyman & Sons, Photo-Litho

C^t Queen S^t London, W.C.



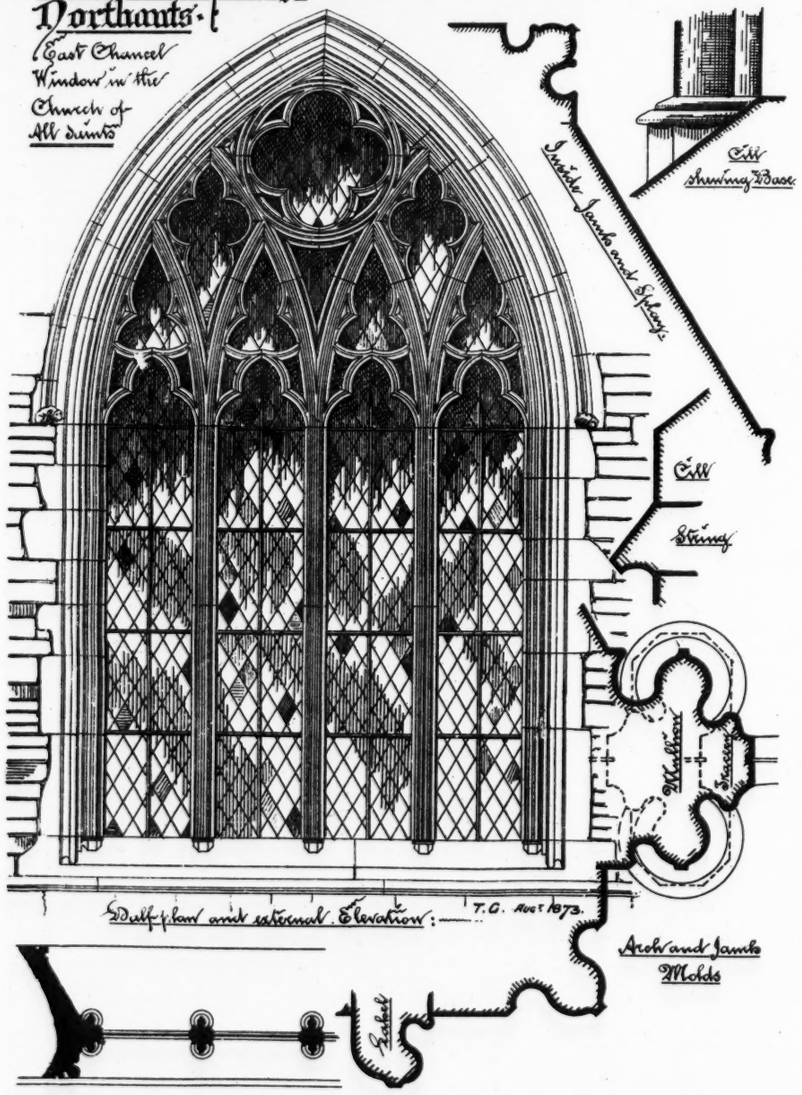
Wyman & Sons, Photo-Litho.

CANONS ASHBY HALL, FROM ROAD.—*Included in the Programme of the Architectural Association Excursion*, 1885.

Cr Queen St London, W.C.

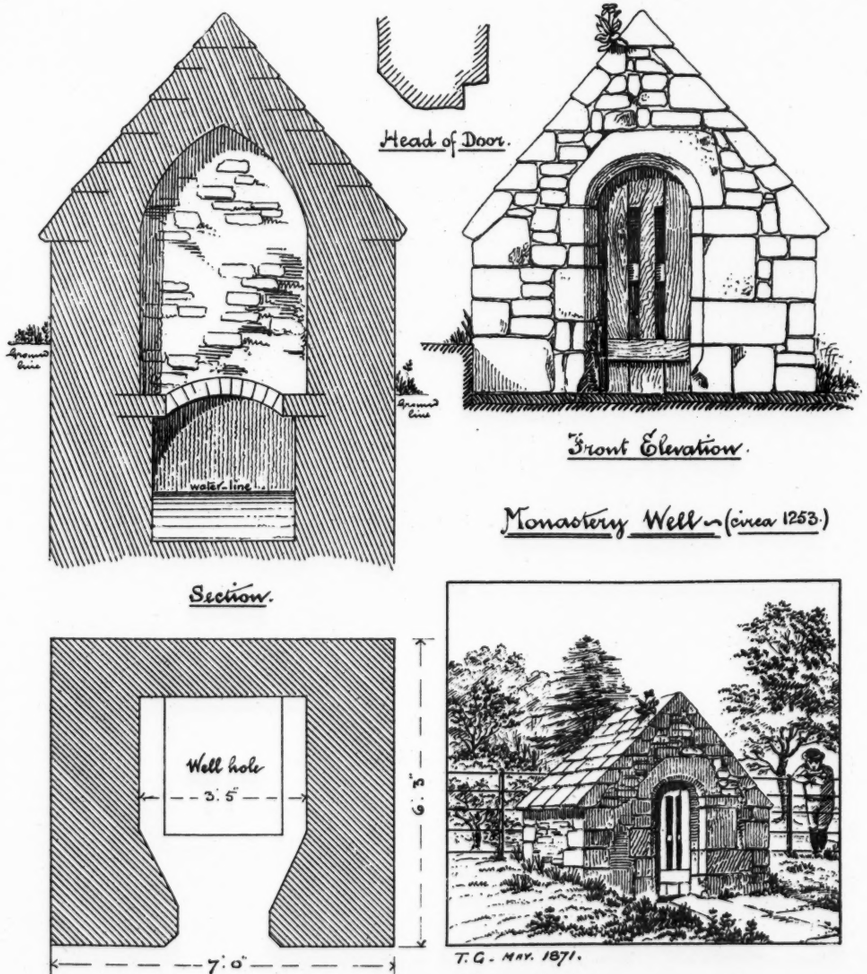
Middleton Cheney. Northants.

East Chancel Window in the Church of All Saints



Wall plan and external Elevation: T.G. Aug.t 1873.

Canons-Ashby: Northants



THOS. GARRATT. DEL JULY '85.

Wyman & Sons, Photo-litho.

Gt Queen St London, W.C.

SKETCHES IN CONNEXION WITH ARCHITECTURAL ASSOCIATION EXCURSION, 1885.

ENGLISH MONUMENTAL EFFIGIES.

This was the subject of an interesting paper read at Derby on Monday evening last by the Baron de Cosson, before the members of the Royal Archæological Institute, as elsewhere mentioned. The lecturer observed that our English effigies are the most important and most carefully-wrought works now remaining to us of the English school of sculpture of the fourteenth and fifteenth centuries. Monumental effigies in our churches have often escaped destruction where other and it may be more important works of the sculptor's art have been ruthlessly destroyed. A careful study of what effigies the lecturer had been able to see had convinced him that in the fourteenth and fifteenth centuries a really excellent school of sculpture existed in this country,—a school which could hold its own with that of any other country at the same date, Italy alone excepted. Of this school of English sculpture what were probably the greatest works have all been swept away. In making a comparison between the work of the English sculptor with that of foreign sculptors, one should only compare his work in effigies with that in the effigies of other countries, not with those works in which imagination, sentiment, and the more attractive artistic qualities could be displayed. Effigy for effigy, the work of the Englishman is equal to that of the German, the Frenchman, or the Fleming. If inquiry be made why, if England possessed so fine a school of sculpture in the fourteenth and fifteenth centuries, it did not progress and develope at the period of the Renaissance, as happened in other countries, the answer would be that the complete cessation of demand for its works and the continual destruction of those already existing which took place during the sixteenth and seventeenth centuries brought it to an abrupt and premature end. To the soft and delicate modelling and the admirable technical execution of the alabaster effigies of the fourteenth and fifteenth centuries succeeded those wooden-looking dolls, in stiffly-folded dresses, which kneel with stony gaze on the monuments of the reigns of the Stuarts. So complete, so final, was the extinction of all English art, that during long years the arts of painting and sculpture, in their higher forms, were almost exclusively practised in England by foreigners, who brought to this country the art of the Renaissance, then already in rapid decay abroad, and from the teaching of these foreign professors of an art already in its decline has the art of England suffered almost to the present day; so much so, that for many long years no great art that was truly national in its character could be said to exist in the land. Going back to the effigies, it will be found that not only do they possess very great interest as works of art, but that they have a strong claim upon our attention on account of the marvellous faithfulness with which they reproduce the armour worn when they were made, and for the manner in which they teach us the story of the gradual growth and development of defensive armour in this country. Thoroughly to appreciate this wonderful accuracy it is necessary to have a very complete technical knowledge of real armour, to have seen, to have examined, to have weighed, to have felt, as much real armour as possible; to have endeavoured to learn how the armour was made and what means of manufacture the mediæval armourer possessed; and to have thought out the why and the wherefore, from a constructive and mechanical point of view, of each piece found and of each form given to it. In all really fine armour of the fourteenth and fifteenth centuries there is a good and workmanlike reason for each piece, and still more so for the special form given to it, and that those pieces and those forms often give proof of the greatest thought and ingenuity in constructive design. After the end of the fifteenth century, it is true, we often find extravagances in form and construction, due to special fancies of the armourer or of the wearer, but these were sure signs that the decline in the armourer's art was rapidly drawing nigh. Now, the great value of monumental effigies to the student of armour is that, down to the end of the fifteenth century, they presented faithful and exact copies of the armour worn by the persons represented by them. The business of the sculptors of the effigies was to make a simple and accurate presentment of the man,—to show him to us as he was when alive, —not (as was so often the case at a later date) to show us to him in clothes which he never wore, habited as no human eyes had ever seen him habited. Truth in a tomb was then thought becoming, — nay, imperative. There was an absence of the fanciful posturing and theatrical bombast which in later ages often proclaims falsehoods which the silent dead beneath, however humble-minded he may have been in life, has now no power to recall. Not that pompous epitaphs always proclaim falsehoods. Some of the dead who lie beneath them may have possessed all the virtues with which they are credited; but, when a gentleman of the reign of Queen Anne is represented in Roman armour, a distinct falsehood is proclaimed. In like manner, when the late Prince Consort was shown in the armour of the fifteenth century on his monument at Windsor Castle, he was shown as wearing that which he had never worn in his life. It may be said that the Roman armour was allegorical of the Roman virtue of the gentleman in the full-bottomed wig, and that the fifteenth-century armour was emblematical of the knightly and Christian virtue of the Prince Consort; but how much simpler, how much more dignified, how much less ridiculous to future generations, are those monuments which show a man as he was, in the apparel he was proudest of, and tell nothing but the plain truth to posterity. Look at the grand dignity of the effigies at Norbury and Longford.* See the knight, laid low at last, clad in the harness in which he has fought for king and country, his hands joined in humble prayer. And, when there is an inscription, it contains no vainglorious vaunting of his virtue, but simply,— "Here lies ——, of ——, knight, who died ——. May God have mercy on his soul!" Who, amongst even the best of us, would not rather have such an epitaph than one declaring that we were all virtue and perfection? When at Tissington, near Ashburne, the lecturer saw an epitaph to a Fitzherbert who died 1619, which amused him very much. It ran as follows:—

> "Love, Justice, Honour here
> All at once in one appear.
> Let the reader silent be,
> And do homage on his knee
> To this Reverend Esquire,
> Yt hath now his full desire
> Of that peace he ever loved
> In his life and death approved.
> Layd here with his two loyall friends,
> Most renouned in their ends"

The idea of asking the stra[illegible]ho entered that village church to bend [illegible]ee, not to God, but to the "Reverend Esquire," is delightful. But these fine early effigies not only interest us by their admirable workmanship, but they also set us an example of good taste and plain truthfulness in our commemoration of the dead. To the archæologist that truth and faithfulness makes them especially valuable, for they told him the story of the growth, development, and decline of the defensive armour which in the Middle Ages chiefly exercised the ingenuity and skill of the worker in steel. The mechanical ingenuity and invention which now is applied to the construction of machine guns, torpedoes, and ironclad ships, was then exercised in devising weapons, engines of war, and defensive armour for the human body. It was the same long struggle between arms of offence and armour of defence, and, if we may learn from the struggle that is passed, we may predict that in the future the guns and torpedoes will win the day. It has been usual to divide the history of armour into the period of pure chain mail armour, the period of chain and plate armour combined, and the period of plate armour, admitting a transitional period between each of these; but, although this is a good rough division, still, it was not altogether satisfactory. In the history of armour we find certain periods where there was a *type* of armour to which all other examples approximate more or less, and that during a considerable period. To this succeeds a shorter period of change and experiment, and after that another type appears. Of course, as in the modern fashion of dress, there were always slow and gradual changes during the reign of the type. The lecturer proceeded, in conclusion, to trace the gradual development and final decadence of armour, as evidenced by monumental effigies, more particularly those of Derbyshire, in reference to which, generally, he said it must be a matter of eternal regret that Charles Stothard did not come into Derbyshire and portray its beautiful effigies in his work, which may be said to be a continued source of wonder to the student of these remains, by its almost faultless accuracy, which would cause it to remain a pattern and a standard of what such works should be. The Baron de Cosson added, that if what he had said about the effigies of Derbyshire should be an incentive to any able draughtsman to render them useful to all antiquaries, and to preserve them for posterity by accurate delineation, he should feel that he had not spoken in vain. Whoever undertook the work, he would deserve the gratitude of all future students of the military history of this country.

* Visited by the members of the Institute. See p. 148, *ante*.

COAL-SLAG AS A BUILDING MATERIAL.

The first steps in the direction of using coal-slag for building purposes were due to the initiative of certain Lyons builders who wished to find a cheap, durable, and healthy material for the construction of suburban houses upon sites acquired for comparatively short leases, the contingency of occasional partial inundations being also kept in view. The coal-slag was mixed with some slaked lime, and was treated as a concrete. The mass hardened rapidly, and even after a few days the walls were firm enough to support the joist-framings. After the lapse of a month the building was dry. At the time named coal-slag was so plentiful that it could almost be had for the asking, and the cubic foot of wall (including transport, scaffolding, and labour) cost about 1½d. After thirty years' experience, this mode of construction has become so general in Lyons that the necessary transport of coal-slag from a certain distance has raised the cost to about 3d. per cubic foot.

According to the *Wochenschrift* of the Austrian Architects' and Engineers' Association, the original proportion for mixing was four parts of slag to one part of lime. At first fat lime was used, and later on hydraulic lime; but, in order to obtain greater strength, it is recommended to increase the proportion of lime and use white lime. The ramming is best effected in layers 6 in. thick. The walls are usually made 1 ft. 7½ in. thick, but they can be thinner if the burden they have to support is light. Solid party-walls can be made 6 in. to 8 in. in thickness by ramming the mixture between boards, or by forming out of it bricks, which can be built into a wall after drying. For a long time this style of building was confined to works of an unimportant character, but within the last two years it has been used by various architects (particularly M. A. Louvier, of Lyons) for public buildings and for private houses of large size.

The strength and fire-resisting properties of the composition in question have been successfully demonstrated by M. Louvier in the course of experiments made by him on a relatively large scale. It is further recorded that a nitrobenzine factory near Lyons was burned down, the violence of the conflagration even melting part of the machinery. The walls (made of this slag mixture) were unconsumed,—their surface having a glazed appearance,—and sustained without repair the ceiling and roof of the restored building. Similar results are said to have been demonstrated by the burning of the Célestins Theatre at Lyons.

People who should Emigrate to New South Wales.—Those who do not mind working hard when it signifies something better than the workhouse in old age. Those always ready to make the best of their position and regard the difficulties of the present as stepping-stones to the successes of the future. Those who are willing to utilise their practical skill and experience in developing the industrial resources of the colony. Those who are not ashamed to work with the hand as well as with the head. Those who have learned to labour and to wait. Those who can readily adapt themselves to the industrial requirements of the district in which they are residing. Those who believe in achieving independence from small beginnings. Those who wish to reap the fruits of habitual temperance, industry, and frugality. Those who believe that labour is prayer. Those willing to work in the present for independence in the future. Those who, like Mark Tapley, can put a bright face on everything. Those who believe in success based on individual effort.

OBITUARY.

Mr. R. W. Sprague.—We regret to record the death of Mr. Robert Winter Sprague, the head of the well-known Lithographing firm of Sprague & Co. Mr. Sprague died on July the 31st, in his 51st year, and was buried at Croydon Cemetery on the 5th of this month. Mr. Sprague had been invalided for some months previous to his death. As most of our readers are aware, he was the inventor of one of the best and most reliable processes for reproduction by lithography from coloured drawings and photographs; and succeeded not only in producing good results, but in producing them with speed and certainty; a quality which none of the various would-be imitators of his method have, as far as we have observed, succeeded in emulating.

The Rev. Henry T. Ellacombe, F.S.A.—It is with much regret that we record the death of the Rev. Henry Thomas Ellacombe, Rector of Clyst St. George, which took place at the advanced age of 95 years, at the St. George's Rectory, on the 30th ult. The deceased was educated at Oriel College, Oxford, and took his degree of B.A. in 1812, and M.A. four years later. He was ordained Deacon in 1816 by the then Bishop of Exeter, and Priest in 1817 by the Bishop of Gloucester. From 1816–17 he was Curate of Cricklade, and upon leaving that parish he became Curate of Bitton until 1835, when he became Vicar of Bitton. In 1850, he was appointed to the living of Clyst St. George, which he held until his decease. Of the Manor of Bitton and the parish of Clyst St. George he published interesting histories. As many of our readers will know, he took a deep interest in campanology, and was the author of several works on the subject. In 1867 he published "The Bells of Devonshire," and in 1871 a supplement thereto, with practical remarks on belfries and ringers. "The Bells of Exeter Cathedral" came under his notice in a most interesting edition in 1874. "Bells of Somersetshire" and the "Voice of Church Bells" (a sermon) are the titles of other works by the rev. gentleman. It is stated that he was to have been an engineer, and for some time was a pupil of Brunel's, who thought highly of him.

THE BUILDERS' ACCIDENT INSURANCE (LIMITED).

The fourth annual meeting of this Company was held on Wednesday, the 29th ult., at the offices, 27, King-street, Covent-garden. Mr. F. J. Dove in the chair. The report of the directors for the year ending the 31st of May, 1885, contains the following passages:—

"In placing before you their report for the past year the directors would remark that during the four years the company has existed they have not only lowered the rate of premium from 6s. 6d. to 4s., but they have paid bonuses amounting in the aggregate to 1,736*l.*

Owing to the slackness of trade and other causes there has been a considerable falling off in the amount of renewal premiums; this, however, has been more than counterbalanced by new business.

The number of accidents reported during the year ending the 31st of May, 1885, has been only 354 as against 549 during the previous year, but your directors regret to say they have been of a much more serious character, and have resulted in a cost to the company of 2,553*l.* as against 2,011*l.* for the year ending 31st of May, 1884.

As many of the members are no doubt aware, the building business in the provinces, more especially in the larger towns in the north, is carried on upon a different system to that obtaining in the metropolis, viz., by separate contractors working on the same building. In the expectation that it will tend to largely increase the company's business in the northern district, the directors, without increasing the premium, have undertaken the extra risks thereby incurred.

The accounts show that, after providing 2,420*l.* for unsettled claims and unexpired risks, and the amount requisite for all known liabilities, an addition of 1,000*l.* to the reserve fund (making it 4,000*l.*) can be set aside."

The Chairman, in moving the adoption of the report, expressed his regret at the absence of the Chairman (Mr. Stanley G. Bird), who had gone on the Continent for the benefit of his health. The members have reason, on the whole, to congratulate themselves that there had been no retrogression with regard to the business, though the character of the business, to a certain extent, was such as induced the directors to proceed very cautiously. The full amount of liabilities which have come in of late are far in advance of those with which they had hitherto had to deal, owing probably to juries sympathising so strongly as they do with the workmen. The directors, therefore, had decided, after due consideration, that it will be far better on this occasion not to give a bonus, but to devote what surplus they had in hand (1,000*l.*) to the reserve fund. The compensation for accidents had been heavier, though the cases had been very much fewer than on former occasions. The principal thing that has occupied our attention during the year has been the question of taking greater risks. As a company, they were very anxious and desirous that the whole of the builders of London and also the builders all over England should have every inducement to insure with them, hence they had placed themselves in the very best position they could to induce builders (who seemed at present to overlook the mutual character of the Company because the premiums were slightly lower in some other companies.

Six of the members of the Board retired, and Mr. Holme is about to retire from business, and consequently from the position he occupies as vice-chairman and as a director. The Employers' Liability Amendment Bill, now before Parliament, and of which notice is taken in the report, is chiefly directed to contracting one's self out of the Act. The Bill also deals with another much more serious point with regard to doing away with the six weeks' notice in case of injury. No body of reasonable men could expect Parliament to do that; at any rate, master builders would watch the Bill closely, and in doing so shall have the co-operation and help of various other associations.

Mr. Bartlett seconded the motion, which was agreed to.

Mr. S. H. Holme then proposed: "That a further sum of 1,000*l.*, as proposed by the Board, be carried to the reserve fund." This was seconded by Mr. Thomas Patrick, and carried unanimously.

Mr. Alderman W. Brown then moved:—"That the sum of 500*l.* be devoted to the remuneration of the directors for their services during the past year." This was seconded by Mr. W. Nicholson and carried unanimously.

Mr. James Greenwood proposed:—"That the following six gentlemen who retire from the Board and have signified their willingness, be re-elected, viz.:—Messrs. F. J. Dove, J. S. Jones, W. Nicholson, Thomas Patrick, W. Southern, and J. C. White." Mr. H. H. Bartlett seconded the resolution, which was carried.

Other resolutions of a formal character having been agreed to, the proceedings terminated.

CONTRACTOR AND SUB-CONTRACTOR.

At the Lambeth County Court, on Tuesday last, before his Honour Judge Pitt Taylor, a case was heard in which Florence Pitcher and Thomas Pitcher (father and daughter) sued Mr. Richard Martin Priestley, a builder, of Doris-street, Kennington, for damages for injuries caused by the negligence of defendant's servants on Tuesday, the 17th of March last, in causing a scaffolding, erected in Lewis-road, Coldharbour-lane, Brixton, to fall upon the female plaintiff, whereby she was seriously injured, and her father was put to great trouble and expense.

Mr. Atherley Jones appeared for the plaintiffs, and Mr. Lewis Glyn for the defendant.

Mr. Jones, in opening, stated that on the day in question Florence Pitcher, who was about ten years of age, was wheeling a perambulator, containing a child, past some scaffolding, which had been erected in connexion with the construction of six houses in the thoroughfare above mentioned, when it fell upon her, causing the injuries which were the subject of the action.

The injuries were not disputed by the defendant, and Mr. Glyn proceeded with the defendant's case, observing that the defendant employed a sub-contractor, named Newman, to do the brickwork in connexion with the houses at 3*l.* per rod, including putting up and taking down the scaffolding. The defendant had nothing whatever to do with the scaffolding, and, therefore, was not liable.

Mr. Arthur Priestley, the defendant, corroborated Mr. Glyn's statement. The materials were his, and the scaffolding was erected in a proper manner. The usual price for brickwork was 2*l.* 15s. per rod, and, in addition, he paid the balance for putting up and taking down the scaffolding. The price given included the scaffolding. He had nothing whatever to do with the scaffolding, nor had any of his men.

Mr. Richard Pearson, foreman to the last witness, said that after the accident he found two stays had been taken out, and something had been done to the putlog. He believed the things had been moved for the purpose of pointing the reveals.

Mr. James Newman, master bricklayer, deposed to contracting to do the work at the price mentioned. He always included the scaffolding work in his price. The scaffolding was properly erected. He had to go to the defendant's foreman for orders with regard to the brickwork, and if he (the foreman) had told him to erect the scaffolding in a different manner he would have done so. The uprights rested on plates, but if the foreman had told him to put them in tubs or in the ground he would have done so.

Harry Butt and Robert Potter were then called on behalf of the plaintiff, with a view of showing that the braces and stays were not moved by Newman's men, and the latter witness said that he assisted one of the plaintiff's carpenters to remove one stay in order to put in some sashes.

John Shirley, the carpenter in question, denied removing the brace, and said he remonstrated with Potter for having done so.

His Honour said the action had unfortunately been brought against the wrong person, and gave judgment for the defendant, with costs.

It was understood that the plaintiffs intend proceeding against the sub-contractor, Newman.

LINES OF FRONTAGE.

At the Woolwich Police-court, Edward Nathan, of High-street, Sutton, builder, was summoned by the Metropolitan Board of Works for unlawfully erecting certain buildings beyond the general line of buildings on the east side of Lee-road, between Cresswell Park and Blackheath, without the consent in writing of the Metropolitan Board of Works, contrary to sec. 75, of 25 & 26 Vic., cap. 162.

Mr. Thos. Burton appeared for the Metropolitan Board of Works, and Mr. Glyn for the defendant.

The facts of the case were as follows:—In 1883, one Tucker commenced the building of three shops in Tranquil Vale, Lee-road; and, upon the Board being informed of this, the Superintending Architect was instructed to define the line of buildings, which was done, and it was then found that the same were some 30 ft. in advance of the line defined by him. Notices were then served upon the builder. Subsequently Tucker absconded, and the works were stopped. In June, 1885, the defendant commenced to finish the buildings, and proceedings were commenced against him.

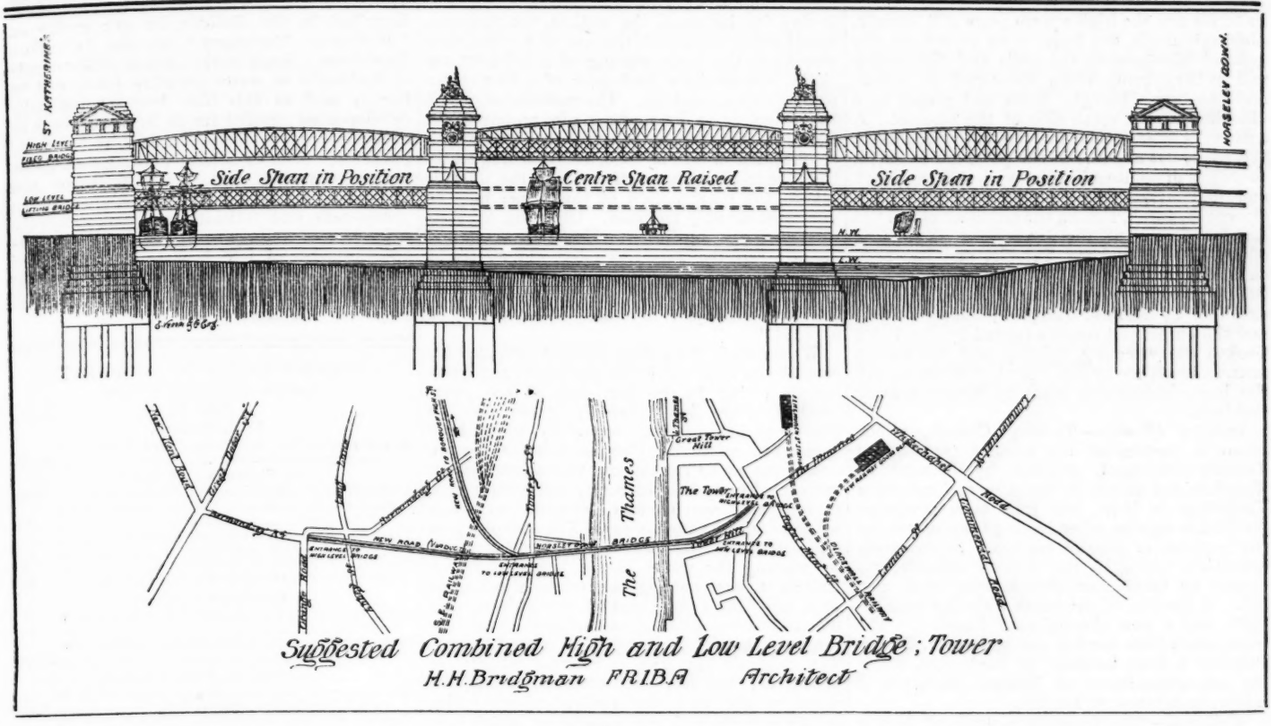
Evidence having been called as to these facts,

Mr. Marsham made an order to pull down such buildings as projected beyond the general line, with costs.

THE IMPROVEMENT OF LONDON MASONRY.

Sir—The decay of the masonry of freestone buildings in the noxious atmosphere of London is but too well known to architects. The remedy has been proposed, but has not yet been accepted by practical and scientific men, although the time would seem to be ripe enough. Meantime, does not a recent letter from the Eternal City offer an example that might be followed in London? The great Emporium built by Marcus Emilius Lepidus, on the banks of the Tiber, near the Aventine, has been discovered. Part of the quay was found in 1868. Here lay hundreds of immense blocks of rare marbles, brescias, and granites, just where they had been discharged from the galleys some fifteen or twenty centuries ago,—Parian, pure as ivory; Numidian, of golden yellow; Karystos, striped with green and white; pink granite from Syene; black diorite from Ethiopia; green and red porphyries from Nubia; Phrygian pavonazetta; marble, white as snow, from Mount Pentelicos. These, as we know, were all more or less commonly used in the magnificent edifices of ancient Rome.

Now, as modern buildings in our own metropolis, for want of better materials, are so imperfectly built that they require restoring in the lifetime of those who may have seen them rising from their foundations; as it is not necessary to go out of the United Kingdom for materials of everlasting durability, even in London, and of beauty rivalling those named above, and as the present trade in these is a close monopoly for high prices, is it not an urgent necessity that the British Government should establish an emporium on the banks of the Thames, and no longer permit perishable structures to be erected for the nation? Transports which would otherwise be lying idle in dock might ship supplies at the nearest ports to the different quarries, and these might be sold to contractors for Government work at cost price. Thus, future buildings in London, belonging to the nation, faced with white or nearly white granite, from Par or Cheesewring, in Cornwall, or Okehampton in Devon, and enriched with the coloured porphyries and syenites from Ireland and Scotland, would not only be constructed in a durable manner, but would be executed at the lowest possible cost to the nation. A reliable comparative estimate shows that the cost need not exceed the expenditure on existing perishable freestone buildings. The use of special machinery has reduced the ex-


Side Span in Position
Centre Span Raised
Side Span in Position
The Thames
Suggested Combined High and Low Level Bridge; Tower
H.H.Bridgman FRIBA Architect

pense of surfacing hard materials to that for manual labour on soft stone.

When these beautiful materials are available, styles of architecture unattempted before in this country could be introduced. Eastern Romanesque, with its domes; Siculo-Norman, with its pointed arch and arabesques; thirteenth-century Italian or Cosmati, or that rich phase of Renaissance, the Cinque-Cento, with its coloured marbles, as seen at the Dario Palazzo, and the Church of the Miracoli, Venice; the Palazzo Giraud, Rome, and at the Certosa, Pavia. The rich geometrical mosaics of these styles would be a striking and charming innovation.

T. R. A.

PROPOSED BRIDGE ACROSS THE THAMES AT THE TOWER.

Sir,—The Select Committee of the House of Commons, presided over by Colonel Stanley, has inquired into the merits of the Corporation scheme for the construction of a new bridge across the Thames at the Tower of London, the preamble of which has been proved, subject to certain clauses being introduced to the satisfaction of the Committee in regard to the openings of the bridge for the accommodation of the river traffic, the most important of these being that the centre span of the bridge shall be continuously open whether vessels are passing or not, at or about the time of high water, for a specified period to be fixed from time to time by the Thames Conservators.

This means that the bridge would be entirely closed to vehicular traffic for a period of about four hours at every tide, reckoning from half-tide to half-tide, during which time alone the larger ships can navigate this part of the river. This would be without doubt a very great drawback to the utility of the bridge; consequently I have put forward the suggestion that a high and low-level bridge combined should be constructed in such a way that there might be a continuous traffic across the river by the upper bridge, whilst the lower may be lifted by hydraulic rams to the underneath side of the upper for the convenience of the shipping, either one or the whole of the three spans being so lifted for that purpose, thus leaving the pool virtually unobstructed. It is calculated that each span, weighing approximately about 250 tons, can be lifted by four 14-in. hydraulic rams, capable of raising say, 1,100 pounds to the square inch. The bridge would be divided into three equal spans of 257 ft., the piers between being 40 ft. each.

The approach to the high-level bridge on the north side of the river would be from Little Tower Hill, opposite the Minories, through the gardens at the north-east corner of the Tower, whilst on the south side the bridge would be continued by a viaduct passing over the South Eastern Railway and ending at Grange-road in a line with Bermondsey-road, which would at once bring the main arteries of Great Dover-street and New Kent-road in direct communication with the new bridge.

It is also suggested that, as the approach to the low-level bridge on that side would commence at Tooley-street, a new roadway should be constructed through Bermondsey, ending at Borough-road, by St. George's Church, thus linking this new bridge with all the other bridges. The height of the underside of the high-level bridge is drawn to show 65 ft. clear, the gradients of the approaches being 1 in 50 and 1 in 40 respectively.

A slight increase in the gradients would give an additional height of 20 ft. to the high-level bridge should it be imperative that this addition be obtained.

The height of the large proportion of the ships that pass this point at high water does not exceed 65 ft., and if the top masts of those, being comparatively few, which are higher, were lowered, 65 ft. would be found sufficient for all ships passing west of this point.

The estimated cost of the City Architect's bascule bridge is 750,000*l.*; but this amount, it was admitted in evidence, would be insufficient for the purpose considering the alterations that have to be made, the piers, for instance, being increased from about 40 ft. to 70 ft. This sum is exclusive of the approaches; the cost of the construction of the suggested combined high and low-level bridge itself, which is much simpler in character, would be considerably less. All points considered, it is most important at this juncture to secure the kind of bridge that shall be of the greatest use to the metropolis generally.

The construction of a bridge at the Tower would probably be the precursor of considerable improvements on the south side of the river, and the two lines of streets indicated on the plan would bring the locality of the Elephant and Castle into easy communication with the docks on the north side, whilst there would be direct communication from the south-west to the East-end across Lambeth and Westminster Bridges, and consequently London Bridge would be very materially relieved of the enormous traffic that now passes over it. This is the first occasion that a combined high and low-level bridge over the Thames has been suggested since the question has been under consideration, now extending over a period of about twenty years, and there is no doubt very important metropolitan improvements could be effected in conjunction with it. It is questionable whether a low-level bridge, after a year or two, would not have to be entirely closed to be capable of taking the larger amount of traffic that must necessarily follow its construction.

H. H. Bridgman.

CHURCH-BUILDING NEWS.

Staines.—The Parish Church of Staines is a comparatively modern structure, and was built at the worst period of church architecture, in 1828, and, bad as it is, being little more than a pewed and galleried room, cost the sum of 12,000*l.* The principal improvements just effected are the addition of a new apse and organ-chamber, raising the chancel floor by two steps above the nave, and three more beyond; the provision of a new altar and reredos, pulpit, desks, credence, lectern, &c., and the enlargement of the vestry, removing the flat plaster ceiling of the chancel and opening the timber roof, and panelling and remodelling the same. The chancel arch which replaces the narrow depressed Tudor opening surmounted by the Royal Arms (in plaster), is of a good width and as lofty as could be made. It is of terra cotta in several orders, heavily enriched. The old east wall has been pierced by a second arch of similar character leading to the apse, which has a semi-domed roof, and is lighted by three small lancet windows, the centre one of which has been glazed with stained glass through the kind liberality of their Imperial Highnesses the Crown Prince and Princess of Germany and their children, and is placed as a memorial to Miss Byng, who was for many years with them, and who is interred in the neighbouring cemetery. The ground of the semi-domed roof is coloured in a soft blue with gold stars and rays, and facing the nave is a colossal figure of Our Lord in Glory holding the Book and attended by adoring angels, while from the throne proceed the waters of life encircling the dome, below which are the words, "He shall come again in glory to judge both the quick and the dead." The walls of the apse are treated in a warm cinnamon buff with light red-jointed masonry blocks and scrolls, the lower portion having a high dado of deep peacock blue. The subject of the east window is Our Lord wearing the Crown of Thorns and scarlet robe, and displaying the five wounds. The reredos, which is of alabaster inlaid with green serpentine, has a circular panel in the centre, the subject being the Lamb of God standing on the mount between the seven golden candlesticks; four smaller panels surround this with the evangelistic symbols, all painted on a gold ground. The gradine, or super-altar, is of white statuary marble. The altar is well raised, and has a white silk frontal, richly embroidered, and crimson velvet super-frontal, both the reredos and frontal being gifts from the daughters of the vicar. The pulpit, which stands on the north side, is a gift from a family long resident in the parish, and is of oak, with panels and tracing of sequoia wood. Regret is expressed that funds have not been forthcoming to effect further improvements in the nave; the ugly

galleries and the high square pews still remain, although much has been done to relieve the general hideousness, the walls and flat ceiling and gallery-fronts being decorated in colour, and the organ brought down and placed in a chamber on the south side of the chancel. A scheme is in existence for the improvement of the nave, but as some of the pews are freehold, there are difficulties in the way. All the work and decorations have been designed by Mr. George H. Birch, F.S.A., the architect of the Old London Street at the Inventions Exhibition, of Devereux-chambers, Temple, and has been carried out by Mr. John Powell, builder, of Staines; the stained glass and painting being executed by Messrs. Campbell, Smith, & Co.; and the pulpit and reredos carved by Mr. Peter Cooke; the warming, lighting, and ventilating arrangements are by Mr. Apted, of Staines; and the brass lectern was made by Messrs. Starkie Gardner.

Tudeley (*Kent*).—Tudeley Church, which forms a portion of the ancient chapelry of Tudeley-cum-Capel, granted by Richard de Thurdele and others to the prior and canons of Tonbridge in 1239, has just been re-opened for Divine service, after having been closed for the purpose of repairs rendered imperatively necessary, owing to the serious dilapidations caused by insufficient foundations on a clay soil. A portion of the north aisle has been rebuilt, and a new chancel arch inserted. The works have been carried out by Messrs. George Punnett & Sons, builders, of Tonbridge, under the superintendence of Messrs. Wadmore & Baker, architects, of London.

Wallsend.—The foundation-stone of a new church to be dedicated to St. Luke, from designs by Messrs. Oliver & Leeson, architects, of Newcastle-upon-Tyne, was laid on the 23rd of July. The church will consist of nave, chancel, north and south aisles, south transept, organ-chamber, and vestries, affording accommodation for about 550 sittings. The style of architecture adopted is Early English. The work will be carried out entirely in stone, with sneck walling and chiselled dressings externally, and stone dressings and stuccoed walls internally. The tower and spire together will rise to the height of about 140 ft. from the ground. The light will be admitted principally by means of the clearstory windows and windows placed high up in the chancel and west walls of the church. Small windows of three lights with internal arcading will light the side aisles, but as far as possible upper light will be depended upon. Vertical inlet wall shafts, in addition to the window ventilators, are provided for the admission of fresh air, and a lofty *flèche* which surmounts the nave roof will be utilised for the extraction of the vitiated air. The total cost of the church, exclusive of the cost of the site, but including heating, lighting, and boundary-walls, will be about 6,000*l*. At present only a portion of the work has been ordered, viz., the nave and one aisle. The contract for this has been let to Messrs. N. & R. Reed, of Newcastle-on-Tyne, for the sum of 2,400*l*., and Mr. G. Relph has been appointed by the committee to act as clerk of the works.

Books.

Pattern-making: a Practical Treatise, embracing the main Types of Engineering Construction. By a Foreman Pattern-maker. London: Crosby Lockwood & Co.

THIS book is evidently written by a man who understands and has practised what he has written about, and in this age of "book construction" this is no mean praise. Another good point about it is that he says what he has to say in a plain, straightforward manner, and we have not, as in many cases, to dig down through a mass of more or less "clever" but involved verbiage to get at the grains of practical information which may or may not be found below. The book commences with some practical notes as to the designing and making of toothed-wheel patterns, with a description of Professor Willis's very useful odontograph scale for obtaining the approximate radii and centres for stutting the faces and flanks of teeth. Further on the author says:—"With respect to thickness of arms, rim, boss, &c., rules are somewhat arbitrary. Something will also depend on the special work the wheel has to do." A very great deal depends on what work the wheel has to do; for instance, the author, we presume, would not recommend the use of a wheel that would suit the back gearing of a lathe for use in the intermediate feed gear of a four-cutter wood-planing machine. The material of which the wheel is to be made is also an important factor in the case, as, should steel, gun-metal, or phosphor bronze be used, as is now frequently the case in the best practice where the duty is severe, the construction of the wheel may be very considerably modified. Chapters on spur and bevel gearing follow. These are short, and contain nothing very new; but old advice, if good, will bear repeating, and therefore we agree with the remark, "that sharp corners in all castings subject to much stress should be avoided."

We conclude the author has not extended his remarks on spur and bevel gearing to any great length, owing to the fact that of late years toothed gears have rapidly given way in favour of belt gearing, especially where high speeds are required. Concise instructions are now given as to setting out worms and worm-wheels. To do this correctly and secure continuous and even contact between worm and wheel is not an easy matter. The author's plan for getting the correct shape on the other faces, by putting the worm in the lathe, and red-leading it, and cutting the worm-wheel teeth until the lead shows contact everywhere, may be a shorter plan than setting them out properly, but it is certainly a rule-of-thumb. The author's remarks on mortise wheels are good; he, however, recommends apple-tree wood as the best for toothed wheels: this hardly accords with our experience, which is in favour of horn-beam, as being generally more reliable as regards quality.

Chapters 10 and 11 contain some capital instructions as to making cylinder and bed-plate patterns together with some remarks on castings, buckling, or bending when cooling-strap pulley patterns are now dealt with, and some notes on miscellaneous engine work follow, which should be useful to young pattern makers, as line illustrations of many of the parts are given with adequate instructions as to making. The author's remarks on making patterns for columns and pipes will repay perusal, and that there is ample scope for improvement in the design of many of the so-called ornamental columns used in building construction, our readers will probably agree with us. Our space precludes us noticing in detail the various other chapters on making patterns for lathes, chain barrels, screws, water-wheels, &c., but the instructions given are clear, and should be serviceable.

We notice the author remarks that glue joints are made, either with the trying plane or with a longer plane called a "jointer." We must not forget, however, that in nearly all pattern shops of any extent hand-feed surface planing machines, for making glue-joints, taking out of "wind," levelling, chamfering, &c., are used, together with panel planing and thicknessing, dimension sawing, and other machines, by which patterns of the extremest accuracy, both as regards thickness, shape, and weight, can be prepared. This being so, to make the next edition of his book more complete, we would suggest to the author the advisability of adding an additional chapter on pattern-making machines and their uses. A glossary of technical terms for young students would also be of considerable service. Although it must be admitted that no art or handicraft can be properly taught through the medium of a book, there can be but little doubt that a well-written Technical Guide—such as the one before us—can be made of very great service if carefully studied, and can be used as the base on which to build our information. We, therefore, cordially recommend the author's treatise to engineering students, young journeymen, and others desirous of being initiated into the mysteries of pattern-making.

Hydraulic and other Machinery. Chester: The Hydraulic Engineering Company, Limited.

Although this book is evidently intended for a trade catalogue, it departs very much from the beaten track in such things. It contains a large number of most excellent photographic reproductions of hydraulic cranes, lifts, pumps, water-motors, riveters, and other machines connected with water power; these illustrations convey even to the non-technical mind a very clear idea of what is represented. Several of the machines illustrated have already been described in the *Builder*, in our notice on "Hydraulic Machinery" at the Inventions Exhibition. Some notes on the public supply of hydraulic or water pressure power will be found; and as this idea becomes gradually developed we predict for it in large towns an ever-widening field of operations, as for many purposes,—such as lifting, working dock-gates, bridges, riveting, and various workshop and warehouse requirements—it should be both a cheap, safe, and reliable power. Although the utilisation of water pressure has made considerable progress of late, it is to us a matter of some surprise that its commercial development has not earlier attracted the attention both of engineers and users.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

July 27.

By E. Millard.

Hornsey-lane—The residence, "Red Bank," 88 years, ground-rent 30*l*.	£2,700

By Weatherall & Green.

Leatherhead—Eighteen plots of freehold land	2,545
The freehold residence, "Bridge House," and a plot of land	540
Tulse Hill—126, Norwood-road, freehold	1,300
A plot of freehold land adjoining	300
Dulwich—Two plots of freehold land	440
Two plots of freehold land in Rosendale-road	800

By Fuller & Fuller.

Islington—19, St. James's-street, 40 years, ground-rent 5*l*.	320
City—22, 23, and 24, Bucklersbury, freehold, area 2,022 ft.	15,000

By Ventom, Bull, & Cooper.

Bayswater—131 and 131a, Queen's-road, and 1, 3, and 5, Porchester-gardens, freehold	8,000
Camberwell—The Camberwell Brewery, freehold, area 46,500 ft.	3,800

By Charles & Tubbs.

Kentish Town—48, Prince of Wales-road, 55 years, ground-rent 5*l*. 5s.	425
Finchley—1, 2, and 3, The Broadway, 98 years, ground-rent 33*l*.	1,800
4, 5, and 6, The Broadway, 98 years, ground-rent 31*l*. 10s.	1,700
Reversion to Nos. 15 to 29, Palmerston-road, term 78 years	162

By Inman & Co.

Chelsea—26, Radnor-street, 57 years, ground-rent 2*l*.	405
Kilburn—26, Princess-road, 77 years, ground-rent 6*l*.	250

By Fleuret & Son.

Clapham—50, 52, and 58, Wye-street, freehold	530
Peckham, Queen's-road—"The London and Brighton Railway Hotel," 60 years, ground-rent 98*l*.	9,500
Thornton Heath—The freehold residence, "Brooklands"	1,390
Penge—A plot of freehold land in Birkbeck-road	75
Peckham-rye—"Dorothy," "Percy," and "New England" Villas, freehold	1,070
11 and 12, Francis-place, freehold	470
Ground-rent of 9*l*. 10s. a year, reversion in 89 years	205
Nunhead—51 to 79 odd, Kirkwood-road, freehold	4,150
29 to 49 odd, Kirkwood-road, 84 years, ground-rent 45*l*. 13s.	2,090

By E. Owens.

West Hampstead—30 and 32, Gascony-avenue, 97 years, ground-rent 18*l*. 18s.	750
5, Fortune-green, part freehold and part copyhold	310

July 28.

By Driver & Co.

Harwich—Freehold wharf and warehouses, area 11,700 ft.	1,060

By P. D. Tuckett.

Edmonton, Silver-street—Freehold house and outbuildings	850

By Debenham, Tewson, & Co.

Lee, High-road—A rental of 65*l*., term 41 years	1,200
60 and 62, Church-street, 41 years, ground-rent 1*l*.	420
Ealing Dene—The reversion to 1 and 2, Oak-villas, term 70 years	75
Romford—"Eastbury Lodge," and 5a. 3r. 8p., freehold	2,500

By E. Robins & Hine.

Chelsea—83, Robert-street, 31 years, ground-rent 7*l*.	545
22, Lydney-street, 40 years, ground-rent 6*l*.	680

By F. Jolly & Co.

Bow—179, Turner's-road, 76 years, ground-rent 4*l*.	260
Peckham—168 and 170, Camden-grove, 77 years, ground-rent 12*l*.	480
Coldharbour-lane—16 and 18, Lewis-road, 57 years, ground-rent 8*l*.	275

July 29.

By Rushworth & Stevens.

Battersea—3, Stanmer-street, 92 years, ground-rent 5*l*. 5s.	205
Gower-street—21 and 22, Little Gower-place, 22 years, ground-rent 4*l*. 4s.	155

July 29.

By Robinson & Rudkin.

Strand—No. 278, freehold, area 710 ft.	3,535

By Inman, Sharp, & Harrington.

Islington—Nos. 328 and 330, Essex-road, freehold	2,410

By W. & F. Houghton.

Stoke Newington—29, Fountain-road, 91 years, ground-rent 10*l*.	610
Walthamstow—1 to 12, Ringwood-terrace, 94 years, ground-rent 42*l*.	1,500

W. A. Blakemore.

Lambeth—5, York-road, 38 years, no ground-rent	750
94, Waterloo-road, 38 years, no ground-rent	615
134, Lower Kennington-lane, Duchy of Cornwall lease, and a policy for 300*l*	330
Sydenham, Mayow-road—"Grove Villa," freehold	1,500

By Maddox & Son.
Sutton-at-Hone—"Sutton Lodge," and 4a. 1r. 19p., freehold £3,700

By E. W. Richardson.
Stamford Hill—1, 2, and 3, Gladesmore-terrace, 93 years, ground-rent, 37*l.* 16s. 800
Willesden—1 to 7, Stonebridge Cottages, 84 years, ground-rent 20*l.* 450
Highbury—Copyhold ground-rent of 3*l.* 10s., term 47 years 62
Copyhold ground-rent of 6*l.*, term 47 years..... 115

By Fuller, Moon, & Fuller.
Balham—1 to 8, Thornton Cottages, freehold..... 1,900
3, Bedford-place, freehold..... 1,200
1, Ravenswood-place, and cottages, freehold 1,750
2 to 5, Balham High-road, and 1, Holly-place, freehold 3,150
2 and 3, Holly Grove, freehold..... 750
35 and 37, Oldridge-road, freehold..... 1,350
Freehold ground-rents of 41*l.* 19s., reversion in 42 years 1,235

By Turner, Rudge, & Turner.
West Hoathley—The residence, "Stonelands," and 105 acres 5,000
"The White Hart Inn," freehold 800

By Driver & Co.
Dunstable, near—"Clay Hall Farm," 142 acres, freehold 2,175

July 30.

By Worsfold & Hayward.
Dover—The Maxton Brewery, freehold..... 1,500
A plot of freehold land 220
Maxton Farm, and 23a. 1r. 26p., freehold 1,700
"The Hare and Hounds" beerhouse, freehold ... 350
An inclosure of land, 24a. 0r. 23p. 1,020

By Broad, Pritchard, & Wiltshire.
Southgate—The residence, "Orchard Lodge," freehold 1,500

By Sinclair & Son.
Islington—25, St. John-street, 41 years, ground-rent 5*l.*..... 355
170, New North-road, 41 years, ground-rent 6*l.* 6s. 400
10, Packington-street, 41 years, ground-rent 6*l.* 6s. 535

By E. Stimson.
Peckham—43 and 45, Albert-road, 81 years, ground-rent 10*l.* 390
Camberwell—216 to 222 even, Camberwell New road, 19 years, ground-rent 30*l.* 1,140
Bermondsey—102 to 118 even, Abbey-street, freehold 3,445
49 to 54, Fendall-street, freehold 1,370
43, Grange-road, freehold 800

By Newbon & Harding.
Homerton—2, Bridge-street, freehold 240
Hoxton—29 to 32, Frances-street, 33 years, ground-rent 24*l.* 400
St. John's Wood—130 and 132, High-street, 35 years, ground-rent 6*l.*..... 775
1 and 3, Cochrane-street, 35 years, ground-rent 5*l.* 865
Marylebone—29 and 30, Upper Montagu-street..... 455
Holloway—1 to 4, James-terrace, 79 years, ground-rent 8*l.*..... 1,310
1 to 8, John-street, 79 years, ground-rent 8*l.* 950
1 to 8, James-street, 79 years, ground-rent 8*l.* ... 925
9 to 16, James-street, 79 years, ground-rent 8*l.* ... 920
James-street, an erection for a public-house, 79 years, ground-rent 7*l.*..... 350

By A. Walton.
Peckham—42 to 48 even, Darrell-road, 80 years, ground-rent 18*l.* 450
New Kent-road—115, Falmouth-road, 9 years, ground-rent 4*l.* 4s. 115
Canning Town—23 to 31 odd, Wouldham-street, 76 years, ground-rent 13*l.* 10s. 450
Old Kent-road—10 to 13, Upper Hall-street, 76 years, ground-rent 7*l.* 12s. 600
Clapham—1 and 2, Christ Church Villas, 84 years, ground-rent 8*l.* 745
3 and 4, Union Grove, 84 years, ground-rent 8*l.*.. 745
1 and 2, Offerton-road, 82 years, ground-rent 13*l.* 700
Kilburn—161, Malvern-road, freehold 750
The lease of the "Malvern Stores," term 92 years 150

July 30.

By Harman & Matthews.
East Ham—11, Wellington-terrace, freehold 123

By H. Parkhouse & Co.
Acton—1 and 2, Sunnyside Villas, freehold..... 600

By Bliss & Sons.
Holloway—16, Magdala-road, freehold..... 285
Hackney-road—120, Columbia-road, 37 years, ground-rent 5*l.* 5s. 260
64 to 72, Minerva-street, 20 years, no ground-rent 840

By Dale & Son.
Clapton—42, Almack-road, 89 years, ground-rent 6*l.* 175
2, Lawley-street, 90 years, ground-rent 5*l.* 5s. ... 150

By T. B. Westacott.
Hampstead—ground-rent of 6*l.*, reversion in 98 years 125

By Prickett, Venables, & Co.
Hadley—The freehold residence, opposite the Green 570
Highgate, Bishop's-road—A plot of freehold land... 160

By Weston & Sons.
Brixton—85, Vassall-road, 16 years, ground-rent 4*l.* 245
East Dulwich—24, Gowlett-road, 83 years, ground-rent 7*l.*..... 270
205, Upland-road, 84 years, ground-rent 7*l.*..... 320
Camberwell—16 and 24, Vaughan-road, 56 years, ground-rent 6*l.* 1,055

By Baker & Sons.
Camden Town—4, Albert-terrace, 49 years, ground-rent 1*l.*..... 505
Hendon—10, Church-walk, 80 years, ground-rent 5*l.* 200

By Baker & Wilkinson.
Holloway—13, 14, and 15, Scholefield-road, freehold 670
89, 91, and 93, Duncombe-road, freehold 820
19 to 29 odd, and 45, Nicholoy-road, freehold 1,665
63 and 65, Rupert-street, freehold 490
Lamb's Conduit-street—Profit rental of 50*l.*, term 13 years 300

Lifts.—We understand that the American Elevator Company have recently been instructed by the Corporation of Manchester to erect one of their Standard Hydraulic Passenger Lifts in the Town Hall.

The Student's Column.

DESCRIPTIVE GEOMETRY.—Part II.

XI.

Find the intersection of a surface of revolution by a plane.

LET P be the cutting plane, and I its intersection with the surface of revolution, of which G^v is the meridian, A the axis, X the plane of the meridian, parallel to the elevation.

We find the intersection I by means of a series of sections by horizontal planes, H, which cut the plane P along horizontal lines, F, parallel to P^h, and cut the revolving surface according to circles H^h; the points, *m*, where both intersections meet one another, belong to the intersection I of the surface, by the plane P.

The tangent to the curve I in the point *m* is contained in a plane, Q, tangent to the surface

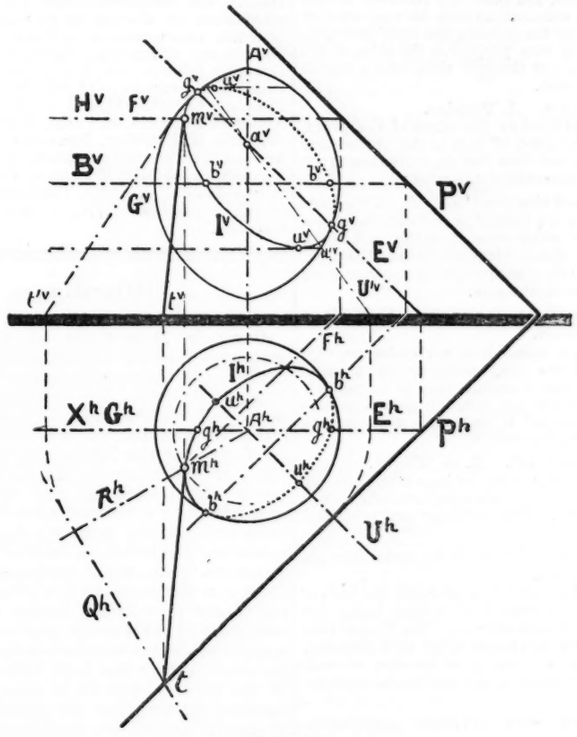


Fig. 140.

in *m*, and is also contained in the cutting plane, P. The tangent is, therefore, the intersection of the two planes, P and Q. We shall draw, Q^h, trace of the tangent plane by the method shown in fig. 139; marking the point *t* where Q^h cuts P^h, the projections of the tangent will be $t\,m^h$ and $t^v\,m^v$.

The principal points of the intersection with which it is well to begin the drawing are,—the points, *b*, where the curve is tangent to the outline of the plan; in other words, the points which belong to parallel B, which we find in the same way as any point, *m*; then the points *g*, where the curve is tangent to the outline of the elevation, which we find by drawing the intersection E of the planes X and P (E^h falls on X^h, and E^v is parallel to P^v); then the points *u*, the highest and the lowest points of the curve, which are on the meridian, U, the plane of which is perpendicular to the cutting plane, P. The intersection of plane P by plane U passes through the point *a* on the axis, for the intersections of plane P by all the meridian planes pass through this same point *a*; in rotating the plane U until U^h coincides with X^h, we shall have U^{1v} passing through a^v, and will be able to mark thereon U^1, the new positions of the points *u* after rotation; rotating back we get the points *u* themselves. (See fig. 140.)

Draw a torus, the plane Q *tangent to it in a given point, m, and its intersection by a plane* P.

The methods given above for solving questions relative to surfaces of revolution are applicable to the torus, *which is a surface generated by a circle revolving round an axis outside its circumference and in the same plane as itself.* In other words, a torus is what is commonly called a ring. We find it in architecture, both in the caps and bases of columns, in vaults circular on plan, such as the turning quadrant of the subway to the Exhibition buildings of South Kensington and the annular vaulting adopted as an architectural feature in the subway between the high-level railway and the Crystal Palace; vertical rings have been used for the vaulting at both ends of the Hall of Clumber Castle, with the following practical advantages:—Thanks to the arc of generation selected, the surface is a portion of a sphere, and any section of it by a plane gives a circle, so that the penetrations of lunettes and top circular lights fit in quite naturally without the help of groining.

If we draw the torus round a vertical axis, A, we will find that every horizontal section will give us two concentric circles, such as the two circles B^h and the two circles G^h. The outer circle B is called the equator of the torus, the inner circle B is called the throat. The sections made in the torus by the vertical plane X are two circles, which, with their tangents, D^v, form the outline of the elevation; these tangents are the elevations of the highest and lowest parallels, D, of the torus. In drawing

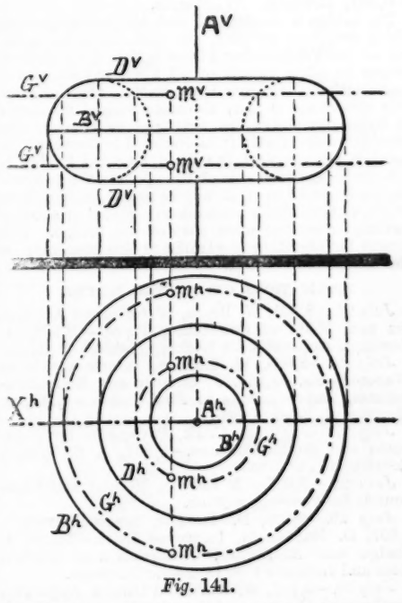


Fig. 141.

the figure we shall mark, as seen on the plan, all the points the elevations of which are above B^v, and we shall mark, as seen on the elevation, all the points which are on the plan, both in front of X^h and also outside the parallel D^h, for we see on the elevation only one quarter of the total surface of the torus. The ordinary method for finding the projections of points on surfaces of revolution hold good for the torus, only we can see on the figure 141 that each m^h is generally the plan of two points m; on the other hand, one projection, m^v, may be the elevation of four points m. (See fig. 141.)

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

6,005, Garden Frames and Lights. C. G. Shea.

The sash is hinged to bars which, at their opposite ends, are hinged to the frame. To allow the sash to completely close, the bars are recessed in the frame. The sash when raised may be supported by rods jointed to it at the corners, the ends resting on notched bars, or by bars pivoted at the sides of the frame, a pin being put through them into a hole in the centre of the sash.

6,923, Fireplaces. A. Perkins.

Angle-plates are fixed to the edges of the grate, to prevent the deposition of soot in the space near the wooden jambs and floor-boards, and so lessen the chance of fire by preventing its ignition.

7,104, Picks and the like Tools. A. E. Stainer.

Straps or langets are formed in one with the blades or arms of the tool which strengthen the hold of the haft in the eye. These "langets" are of the usual form, but are slightly elongated, to strengthen their hold on the handle of the pick.

16,167, Water-closet Basins. A. C. Billings and A. D. Middleton.

The flushing-pipe opens into a circular passage round the top of the pan, having several holes to supply reserve water, when the flush is completed. The water enters the pan through three separate openings, which spread it and deflect streams to each side and down the centre.

4,259, Chimney Cowl. E. G. Wright.

Apertures are formed near the base of the cowl by piercing the barrel and by arranging truncated cones one above the other. The openings are protected by ears.

5,515, Furnaces and Vessels to resist intense heat. H. D. Pochin.

The sides and flues, and in some cases the beds of the furnaces and the interior of casting ladles are formed of blocks of chrome iron. The blocks may be dressed and the interstices filled with fire-clay, tar, or pitch with a backing of fire-clay or such material as may be formed, and the blocks set more roughly in it.

6,097, Cabinets with invisible cupboards. J. P. Word.

Mirrors are so arranged in cabinets as to enclose a space, and at the same time to reflect the square ends or other parts of the cabinet so as to make it appear empty. Articles may be concealed in the enclosed space.

6,467, Bridges. W. Morris.

The bridge is constructed with an opening portion which swings on the pier. On each side of the opening are piers supporting a fixed bridge at a sufficient height to allow vessels of all kinds to pass underneath without lowering their masts. On the land side of each set of pier, elevators worked by steam or hydraulic power are arranged to transfer the passengers and traffic from one level to another. In another arrangement the fixed elevated bridge is not used. On each side of the opening the projecting part is built at right angles to the bridge, from which vertical shafts are sunk to a tunnel or subway passing under the open part of the bridge. The means for elevating the traffic in this case may be the same as in the first.

APPLICATIONS FOR LETTERS PATENT.

July 24.—8,931, W. Bruce, Water-closet Apparatus and Mode of Connecting Pipes.—8,952, J. Cowland, Apparatus for Locking Ladders or Steps.

July 25.—8,968, W. Buchan, Improvements in Water-closets.—8,980, J. Sumner and E. Higginbotham, Improvements in Fire Grates.—8,989, O. Hertrumpf, Brick Kilns.

July 27.—9,007, E. Clark, Pavements for Footpaths and similar Surfaces.—9,021, J. B. Spence, Construction of Roofs.

July 28.—9,087.—A Reddie, Method and Compounds for Preserving Stone.

July 29.—9,090, D. Thomas, Screw Drivers.—9,097, D. Macdonald, Improved Brick.—9,128, J. Sledge and A. Slatter, Construction of Electric Bells and Indicators for Domestic Purposes.

July 30.—9,147, W. Ward and Others, Apparatus for Opening, Closing, and Securing Fanlights, Ventilators, &c.—9,154, W. Joy, Improvements in the Manufacture of Cement.—9,155, F. Farley, Manufacture of Butt Hinges.—9,165, W. Beck, Waterwaste Preventing Apparatus.

PROVISIONAL SPECIFICATIONS ACCEPTED.

6,260, G. Barnard, Combination T-square, Set-square, and Clamp.—6,928, A. Ashwell and C. Cross, Indicating Door-fastenings.—7,189, W. Joy, Manufacture of Cement.—7,579, W. Bruce, Syphon Traps, for Drain and other Pipes.—7,587, W. Farrow, Water-waste Preventer Cistern for Water-closets.—7,620, H. Byles and T. Hanson, Improvements in Water-closets.—7,735, T. Collis, Portable Dust-bin.—8,072, J. Adams, Silent Closing and Retaining Door-springs.—12,644, R. Adams, Door Springs and Checks for the Prevention of Slamming.—4,241, P. Walker, Improvements in Ventilators.—6,294, M. Shearer and others, Brick Pressing and Moulding Machine.—7,086, H. Haddan, Joiners' Clamps.—7,483, J. Hamond, Mortising Machines.—7,560, J. Mulliner, Improvements in Sanitary Pans, &c.—7,741, C. Elphick, Flushing Apparatus.—8,138, H. Williams, Window Sash Fastener.—8,444, J. Pearson, Improvements in Bakers' Ovens.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

13,095, W. Brock, Construction of Sanitary Houses and Bungalows.—5,207, J. Blakeley, Improvements in Mortise Locks.—7,795, T. and E. Durrans, Improvements in Nails, &c.—7,813, H. Hobson and S. Rushton, Machine for Elevating or Lowering Firemen, &c., to any desired altitude of a building or structure.—12,965, W. Vivian, Syphon Flushing Cistern.—13,026, T. Briggs, Soldering Apparatus.—13,213, A. Pimm, Improved Pavement.—13,493, H. McColley, Manhole Covers for Drains, &c.—13,891, W. and C. Elkin, Improvements in Ventilators.—14,319, E. Banner, Ventilating Apparatus.—16,504, H. Smith, Preventing the Rattling of Window-sashes.—7,770, R. Best, Central Light Gaseliers.

Miscellanea.

Ceramic Decoration at the Chiemsee Palace.—Ceramic decoration has been largely used in the above edifice, constructed for the King of Bavaria. The celebrated terra-cotta factory of Villeroy and Boch of Merzig was intrusted with the whole of the rich external decorations of the façade, the capitals of the pilasters and columns, &c. All these decorative objects are in *alto relievo*, and are executed upon a colossal scale in the peculiar terra cotta of the factory referred to, which resembles sandstone in colour and granular structure. The official testimony of Herr Von Dollmann attributes to this substance (according to the *Sprechsaal*) greater durability and resistance to the weather than are possessed by natural sandstone and limestone. The Meissen porcelain factory has been executing an order of the value of 12,500*l*. in connexion with the internal decoration of the palace. One object of special interest is a candelabrum, about 9 ft. in height, made to bear 108 lights, and richly ornamented with flowers and figures. This work has occupied a year in its production, and has alone cost 1,000*l*. Four large mirror-frames are also noticed, each about 10 ft. high. The increasing adoption of specially-prepared terra-cotta work for architectural purposes is further exemplified by the fact that in the new Academy at Munich there is being extensively used an imitation of white Trientine marble. Of this material there are in the edifice named 500 metopes, 150 capitals, 300 running yards of *alto relievo* figured frieze-work, 1,680 consoles, 24 portrait medallions, 1,500 balusters, and 86 vases. Herr Von Neureuther has officially expressed his approval of the quality of this material and of the artistic exactness of the work in general.

A New Altar Tomb and Recumbent Statue of the late Rt. Rev. Thomas Brown, Bishop of Newport and Menevia, is to be erected in the chantry of the Pro-Cathedral, Belmont, Herefordshire, from the designs of Messrs. Pugin, architects. The committee have commissioned Mr. R. L. Boulton, sculptor, with the work which is now in hand.

Writtle.—The foundation-stone of a new Congregational Chapel at Writtle, Essex, was laid a few days ago. The new building, which is to be of brick, in the "Queen Anne" style, is intended to seat 160 persons, and will cost 500*l*. Mr. C. Pertwee, of Chelmsford, is the architect, Mr. H. Kennell, of Writtle, being the builder.

Erratum. — In describing the furniture which is being made by Messrs. Johnstone, Norman, & Co., from Mr. Alma Tadema's designs, we gave the name of Mr. Coleman as the artist who had worked out the details under Mr. Tadema's supervision. It should have been Mr. W. C. Codman.

The "Housing Bill."—We have received a copy of a memorial presented to Sir Richard Cross, the Home Secretary, by the Association of Public Sanitary Inspectors on the "Housing Bill." In it the memorialists state that the continuance of the evils of preventible sickness and mortality amongst the wage-earning classes by the failure of the existing laws being efficiently carried out as set forth in the evidence, as yet incomplete, produced before the "Royal Commission on the Housing of the Poor," has been occasioned by the defects of legislation and of local administrative organisation in confiding the application of the remedies to incompetent and unwilling authorities who often, as owners of the worst-conditioned tenements, are actuated by sinister interests against their amendment, and where such interests are not prevalent failures in the execution of the sanitary laws will be found to have arisen from defective administrative organisation from the local authorities having only an insufficient service of paid officers, especially of those officers who have to deal practically and the most directly with unsanitary conditions, viz., the sanitary inspectors, being often intentionally underpaid and not thoroughly efficient or effectively organised. The memorialists propose that in the Bill it should be provided:—

(1) That no Sanitary Inspector should be eligible to hold office unless he can produce a certificate of a competent recognised authority that he is duly qualified for the situation, unless he has held his appointment over three years.

(2) That, in order that Inspectors should be protected in the efficient discharge of their duties, it is recommended that all officers shall be approved of by the Local Government Board, and that no officer shall be discharged except upon proof of incompetency or of misconduct, verified before a central authority.

(3) That local authorities shall have the same powers as are granted to the Poor Law Authorities for the superannuation of Sanitary Inspectors for making provision, in case of partial disablement caused by accident or disease, and that it shall be legal for local authorities to make some provision for the support of the family of any officer who might lose his life by disease caught while in the discharge of his duties.

In addition to the proposed amendments, it is suggested that the word "may" in the several sanitary laws affecting this question shall be "shall," so that the local authority shall be compelled, under a penalty, to effectually put in force the laws in the locality of which they have charge.

Injury to Iron Bridges from Locomotive Fumes.—How necessary it is to protect iron bridges against external influences by well painting them is shown by a report of the injury done to such a bridge by smoke which we read in the *Bulletin*. The western approach to Callow-hill-street bridge, Philadelphia, is said to be in a shaky condition. The bridge is an iron one, and its western end spans the track of the Pennsylvania Railroad at a point where locomotives are continually passing; and it is stated that the sulphurous acid from the smoke stacks of the engines has been the cause of the trouble. A great deal of the iron above the tracks most used is being gradually eaten away, and the ground beneath is thickly strewn with thick iron scales that have dropped from the bridge work, which has not been protected by proper painting. The river span, which is not reached by locomotive smoke, is not affected, and is said to be in excellent condition.—*Iron*.

London & County Banking Company (Limited). — The half-yearly report and balance-sheet of this company, adopted at the half-yearly meeting held on Thursday last, will be found in one of our advertisement columns. The directors report that the net profits for the half-year ending June 30 last amount to 234,190*l*. The directors have declared an interim dividend for the half-year of 10 per cent.

The National Competition Exhibition of 1885.—With reference to the article with this title in our last, we are asked to say that the Travelling Studentship, in connexion with the West London School of Art was awarded to Mr. A. C. Weatherstone, *not* Wheatstone, as printed.

Architectural Association Lectures.—Messrs. Walter Dewes, A. J. White, and W. Sheen, jun., have been awarded first, second, and third prizes respectively in connexion with Mr. Henry Lovegrove's lectures on Construction at the Architectural Association.

Accrington.—We understand that Mr. F. S. Button, assistant surveyor to the Corporation of Accrington, was unanimously appointed borough surveyor to that Corporation at a meeting held on Monday last, Mr. Wm. Green being appointed assistant surveyor.

The Salters' Company and Technical Education.—The following resolution was passed at a meeting of the Court of the Salters' Company, held on July 31st, 1885:—"That the Court of the Salters' Company being informed of the need of increased funds to enable the City and Guilds of the London Institute to maintain in efficiency the various branches of work for the advancement of technical education, to which the confederated companies are pledged, hereby agrees to raise its annual subscription to the Institute from 525*l.* to 1,000*l.*, payable in moieties during the pleasure of the Court, in the months of May and November."

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	10	0	7	10	0
Teak, E.I. ....load	12	10	0	15	10	0
Sequoia, U.S. ....ft. cube	0	2	6	0	2	9
Ash, Canada ....load	3	0	0	5	0	0
Birch ,, ...	3	0	0	4	10	0
Elm ,, ...	3	10	0	5	0	0
Fir, Dantsic, &c.	1	10	0	4	10	0
Oak ,, ...	3	0	0	5	0	0
Canada	6	0	0	7	0	0
Pine ,, red	3	0	0	4	0	0
,, yellow	3	15	0	5	5	0
Lath, Dantsic ....fathom	5	0	0	6	0	0
St. Petersburg	5	0	0	7	0	0
Wainscot, Riga....log	3	0	0	4	10	0
Deals, Finland, 2nd and 1st...std. 100	8	0	0	9	0	0
,, 4th and 3rd	6	10	0	7	10	0
Riga	7	0	0	8	10	0
St. Petersburg, 1st yel.	10	0	0	17	0	0
,, 2nd ,, ...	8	0	0	9	15	0
,, white	7	0	0	11	0	0
Swedish....	7	0	0	17	0	0
White Sea	8	10	0	19	0	0
Canada, Pine 1st	18	0	0	32	10	0
,, 2nd	12	0	0	18	10	0
,, 3rd, &c.	7	0	0	10	10	0
,, Spruce 1st	9	0	0	12	0	0
,, 3rd and 2nd	6	10	0	8	0	0
New Brunswick, &c....	5	0	0	7	10	0
Battens, all kinds	4	0	0	13	0	0
Flooring Boards, sq. 1 in.—Prepared, first	0	9	0	0	13	0
Second	0	7	6	0	8	6
Other qualities	0	5	0	0	7	0
Cedar, Cuba....foot	0	0	3½	0	0	4
Honduras, &c.	0	0	3	0	0	4
Australian	0	0	3	0	0	3½

TIMBER (*continued*).	£.	s.	d.	£.	s.	d.
Mahogany, Cuba	0	0	5	0	0	7½
St. Domingo cargo av.	0	0	5½	0	0	7½
Mexican ,, ...	0	0	4	0	0	5
Tobasco ,, ...	0	0	4½	0	0	6½
Honduras ,, ...	0	0	4½	0	0	6½
Rose, Rio ....ton	7	0	0	17	0	0
Bahia....	7	0	0	16	0	0
Satin, St. Domingo .... ft.	0	0	8	0	1	0
Porto Rico	0	0	8	0	1	3
Walnut, Italian	0	0	4	0	0	5
METALS.						
IRON—Pig in Scotland ....ton	2	0	9	0	0	0
Bar, Welsh, in London....	5	0	0	5	7	6
,, ,, in Wales	4	12	6	4	17	6
,, Staffordshire, London	6	0	0	7	0	0
Sheets, single, in London....	7	10	0	9	0	0
Hoops ,, ...	7	0	0	8	0	0
Nail-rods ,, ...	6	0	0	7	0	0
COPPER—						
British, cke. and ingt. ....ton	47	10	0	48	10	0
Best selected	48	10	0	49	0	0
Sheets, strong....	55	10	0	56	0	0
,, India	52	10	0	53	0	0
Australian, fine cash....	54	10	0	56	0	0
Chili, bars ,, ...	43	17	6	44	5	0
YELLOW METAL....lb.	0	0	4½	0	0	4½
LEAD—Pig, Spanish	12	5	0	0	0	0
English, com. brands	12	12	6	0	0	0
SPELTER—						
Silesian, special ....ton	13	7	6	14	0	0
Ordinary brands	13	12	6	13	15	
TIN—						
Straits	94	0	0	94	10	0
Australian	94	0	0	94	10	0
English ingots....	96	0	0	0	0	0
TINPLATES—						
IC coke ....box	14	6	0	16	6	0
IX ditto	21	0	0	25	0	0
IC charcoal	17	0	0	20	0	0
IX ditto	26	0	0	27	0	0
OILS.						
Linseed ....ton	23	0	0	23	10	0
Cocoanut, Cochin	32	10	0	0	0	0
Ceylon	27	10	0	0	0	0
Copra....	26	0	0	26	10	0
Palm, Lagos	29	10	0	30	0	0
Palm-nut Kernel	26	10	0	0	0	0
Rapeseed, English pale....	25	10	0	26	0	0
,, brown	24	0	0	0	0	0
Cottonseed, refined	22	0	0	23	10	0
Tallow and Oleine	25	0	0	45	0	0
Lubricating, U.S.	7	0	0	10	0	0
,, Refined	8	0	0	15	0	0
TURPENTINE—						
American, in cks. ....cwt.	1	9	3	0	0	0
TAR—Stockholm ....brl.	1	2	0	1	2	6
Archangel....	0	14	0	0	14	6

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Lecture-hall, Class-rooms, &c., Wolverhamptn	Trustees of Chapel	S. Loxton	August 11th	ii.
Taking-up and Repairing Wood-Paving	Fulham Board of Wks.	*Official*	August 13th	ii.
Rebuilding Beckenham Village Bridge	Kent Justices of the Peace	do.	do.	ii.
Making-up Carriageway	Hornsey Local Board...	T. De Courcy Meade ...	August 17th	ii.
Building Piggeries, &c., at School	Cent. London Schl. Dis.	*Official*	do.	xviii.
Road Materials	Richmnd (Surrey) U.S.A	do.	August 18th	ii.
Painting Cavalry Barracks	War Department	do.	do.	i.
Wrought and Cast-Iron, for Bridges	Midland Railway Co....	A. A. Langley	August 20th	ii.
Sewerage Works....	Friern Barnet U.S.A....	Baldwin Latham	August 25th	ii.
Enlargement of Allington Lock on Medway, &c.	Lower Medway Nav. Co.	Law & Chatterton	August 27th	ii.
Pipe-Sewer, Manholes, &c., Engine-house, &c.	Walthamstow Lcl. Bd.	G. B. Jerram	August 28th	ii.
Four Shops at Acton....		G. A. Lean	Not stated.	xviii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
Inspector of School Buildings	Leicester School Board	3*l.* 3s. per week	August 17th	xvi.
Clerk of Works	Wimbledon Local Brd	do.	August 25th	xvi.
Surveyor	Justices of the Peace for the Co. of Warwick	400*l.* per annum	August 31st	xvi.

TENDERS.

For the erection and completion of new vestry-hall, Chelsea. Mr. J. M. Brydon, architect:—

Garlick	£20,000	0	0
Kingham	19,479	0	0
Craske	18,883	0	0
Green....	18,879	0	0
Lathey Bros.	17,800	0	0
Stimpson & Co.	17,700	0	0
Downs	17,678	0	0
Priestley & Gurney	17,600	0	0
Patman & Fotheringham....	17,472	0	0
Brass	17,435	0	0
Hart	17,434	0	0
Castle....	17,143	0	0
Nightingale	17,079	0	0
Braid....	16,850	0	0
Chappell	16,846	0	0
Martin, Wells, & Co....	16,800	0	0
Howell & Son	16,480	0	0
Stevenson....	16,350	0	0
J. O. Richardson	15,200	0	0
C. Wall	14,944	0	0

For repairs and decorations to the Grosvenor Hall, Buckingham Palace-road. Mr. Geo. S. Finlay, architect:—

J. Griffiths....	£197	0	0
T. Coulthard....	150	0	0
T. F. Williams (accepted)	148	0	0

For the erection of a school-house and outbuildings at Leicester, for Mr. R. S. Lea. Mr. W. Millican, architect, Leicester:—

G. J. Fox & Son, Atherstone	£6,887	0	0
Foster & Dicksee, Rugby	6,240	0	0
Parnell & Son, Rugby....	6,150	0	0
Smith, Chilvers Coton....	5,880	0	0
Baines & Turton, Nottingham....	5,820	0	0
F. Major, Leicester....	5,698	0	0
Clarke & Garrett, Leicester	5,649	0	0
Law & King, Lutterworth....	5,550	0	0
J. O. Jewsbury, Leicester....	5,549	10	0
Herbert, Leicester	5,510	0	0
H. Black, Barrow-on-Soar	5,337	0	0

For alterations of premises for the Liberal Club, Audenshaw. Mr. J. H. Burton, architect, Ashton-under-Lyne:—

Goodall & Co., Manchester	£190	0	0
Chas. Morris, Ashton-under-Lyne	190	0	0
J. W. Williamson, Ashton-under-Lyne	186	0	0
Castle Hall Saw-mills Company, Stalybridge	182	10	0
Walter Clough, Ashton-under-Lyne ...	182	0	0
Aaron Marsden, Ashton-under-Lyne...	176	0	0
Jabez Gibson, Dukinfield	173	0	0
Allen Holmes, Ashton-under-Lyne ...	168	10	0
Zachariah Pike, Hooley Hill*	164	0	0
Sandham, Thomson, & Co., Droylsden†	150	0	0

* Accepted. † Withdrawn.

For private street improvements, for the Leyton Local Board. Mr. Wm. Dawson, C.E., surveyor:—

Kerbing and Paving with Victoria Stone.

Farrah	£6,772	3	2
Neave	6,718	13	0
Nowell & Robson....	6,714	16	3
Beevers	6,679	10	6
Griffith (accepted)	6,373	1	3

Drainage and Roadmaking.

Harris	2,220	0	0
Neave	2,004	9	6
Jackson (accepted)	1,944	0	0

New Intercepting Sewer.

Bell	267	13	9
Neave	263	0	0
Jackson (accepted)	251	0	0

For alterations and additions to residence to Ashburnham-road, Bedford, for Mr. G. W. Parker. Mr. F. T. Mercer, architect. Quantities supplied:—

Potter]....	£879	0	0
Harrison....	878	0	0
White	815	0	0
Laughton	800	0	0
Foster	779	0	0
Adams,....	770	0	0
Warton & Walker	768	0	0

[All of Bedford.]

For painting, decoration, &c., to the Borough-road College, for the British and Foreign School Society. Messrs. Lee & Smith, architects:—

Rhodes	£399	10	0
Decorative Society	348	0	0
Rice....	241	0	0
Dicksee & Dicksee, 4, Pall Mall-place*	236	0	0

* Accepted.

For new boundary-wall, fives-courts, paving works, &c., at the Borough-road College, for the British and Foreign School Society. Messrs. Lee & Smith, architects:—

Mowlem & Co.	£1,486	0	0
W. H. Castle....	1,337	0	0
D. S. Rice	1,036	0	0
Dicksee & Dicksee, 4, Pall Mall-place (accepted)	1,028	0	0

For painting, decoration, &c., to the Stockwell-road College, for the British and Foreign School Society. Messrs. Lee & Smith, architects:—

Decorative Society	£518	0	0
Rhodes	422	0	0
Rice....	360	0	0
Dicksee & Dicksee, 4, Pall Mall-place*	344	0	0

* Accepted.

For decoration and alterations to St. Barnabas's Church, Addison-road, Kensington. Mr. Arthur Baker, architect:—

	A.	B.	Total.
Nash	£568 0 ...	£132 0 ...	£700 0
Callingham	597 0 ...	99 0 ...	696 0
Heath	470 10 ...	192 5 ...	662 15
Grady	406 0 ...	143 0 ...	549 0
Dicksee & Dicksee, 4, Pall Mall-place*	293 0 ...	144 0 ...	437 0

* Accepted.

A. Decorations to nave, chancel, staircases, and lobbies, and alterations to gallery front.

B. Alterations to and painting gallery pews.

For alterations at the Hercules Tavern, Holloway-road, for Mr. Hewitt. Mr. Jas. Miller, architect:—

Adams....	£541	0	0
King & Son	516	0	0
Aitchison	459	0	0
Vears	446	0	0
Mark	444	0	0
Bartlett & Hawkins	415	12	0
Smith	413	0	0

For pulling down and rebuilding stable, coachhouse, and residence, Little Cadogan-place, S.W., for Mr. J. Richards. Mr. J. T. Stokes, architect:—

C. Wall	1,841	0	0
J. Holloway	1,270	0	0
Rayment & Son....	1,220	0	0
Channon	1,210	0	0
Lathey Bros.	1,130	0	0

For alterations and additions to No. 1, "The Hill," Acton, W., for Mr. W. J. Amherst. Mr. Chas. J. Smithem, architect:—

Bray, Ealing....	£458	0	0
Myring, Acton	450	0	0
Hudson, Wandsworth	440	0	0
Hedges & Goodrick, Acton (withdrawn)	365	0	0

For part rebuilding of and alterations to 9, Wigmore-street, W. Mr. Alexander Payne, architect. Quantities supplied:—

J. & J. Greenwood	£2,432	0	0
J. M. Macey & Sons	2,159	0	0
T. L. Green	2,087	0	0
Chas. Cox	2,030	0	0
Stimpson & Co. (accepted)	1,986	0	0

For engine-house and pump well, cottage, brick and pipe sewers, cast-iron pumping main, gas engines, pumps, &c., for the Oxford Local Board. Mr. W. H. White, engineer:—

S. Hutchins, Oxford	£2,331	5	0
T. H. Kingerlee, Oxford	2,088	8	8
Innes & Wood, Birmingham....	1,941	15	3
J. W. Pickthall, Yardley	1,800	0	0
G. Moss, Oxford and Liverpool*....	1,799	14	11
Cowdery & Sons, Newent	1,795	3	5
Bell & Sons, Saffron Walden	1,770	0	0

* Accepted.

Engineer's estimate, £1,778.

For painting and decorating works at 49, Elvaston-place, S.W., for Mr. Horace H. Budd:—

Best....	£503	0	0
Bevan	489	0	0
Pratt & Son	489	0	0
Cook	440	0	0
Lemmon, Ascot (accepted)	430	0	0

For the rebuilding of Nos. 85 and 86, Berwick-street, Soho. Messrs. Barden & Milnes, architects:—

Stuart	£2,257	0	0
Simpson & Son	1,729	0	0
Longmire & Burge	1,710	0	0
Cock	1,695	0	0
Macey & Sons	1,630	0	0
Scrivener & Co.	1,598	0	0

For the erection of new stables at Stratford, E., for Mr. J. R. Roberts. Mr. J. Kingwell Cole, architect, Quantities supplied by Mr. P. Pietersen:—

Puzey & Lumley	£3,074	0	0
G. S. Williams & Sons	2,985	0	0
G. & J. Green	2,912	0	0
Macey & Sons	2,889	0	0
G. J. Hosking	2,859	0	0
J. Morter	2,787	0	0
M. A. Palmer & Co.	2,699	0	0
Patman & Fotheringham	2,647	0	0
M. Gentry	2,640	0	0
Wall Bros.	2,638	0	0

For two houses at Hampton. Mr. John Warne, surveyor, Teddington:—

Bonell	£658	0	0
Hickingbotham	650	0	0
Richardson	602	0	0
Webb	593	0	0
Piller	523	0	0
Garrett	492	0	0
Potter	490	0	0

For the erection of new offices, Deptford Lower-road, S.E., for Messrs. Rose, Smith, & Co. Mr. Edward Thomas, architect:—

L. Stevens	£683	0	0
S. Chafen	650	0	0
R. & E. Evans, Peckham (accepted)	649	0	0

For works to the St. John's-road, Sevenoaks, Kent, in forming, metalling, kerbing, channelling, tar paving, &c., for the Sevenoaks Local Board. Mr. Jabez Mann, town surveyor:—

W. J. Botterill, London and Sevenoaks	£814	0	0
Jas. Clarke, Croydon	753	17	3
H. W. Morfett, Maidstone	751	0	10
W. & J. Woodham, Sydenham	748	2	0
H. Owen, Sevenoaks	637	13	0
Woodham & Fry, Greenwich	545	0	0
Beadle Bros., Erith*	540	0	0

* Accepted according to schedule of prices. Surveyor's estimate, £880.

For the erection of Wesleyan Chapel at Whitmore Reams, Wolverhampton. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove:—

Cave	£5,167	0	0!
Jones	4,200	0	0
Gough	4,021	0	0
Dove	3,824	0	0
Guest	3,799	0	0
Smith	3,798	0	0
Higham	3,718	0	0
Horton	3,698	0	0
Horsman	3,600	0	0
Bradney	3,549	0	0
Lynex	3,538	0	0
Tildesley	3,250	0	0
Davis	3,038	0	0
Moss	2,880	0	0!

For the erection of Wesleyan Chapel at Buckhurst Hill, Essex. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove:—

Anley	£1,890	0	0
Robson	1,825	0	0
Green	1,793	0	0
Gregar	1,760	0	0
Allen	1,736	0	0
Steward	1,680	0	0
Wells	1,450	0	0
Egan	1,407	0	0

For a new lodge, for Mr. Pryce Jones, Newtown. Mr. Edward Parke, architect:—

Swain & Owen	£217	0	0
E. C. Phillips	183	10	0
Morris & Sons	180	0	0
John Morris (accepted)	171	11	6

[All of Newtown.]

For a range of farm buildings at Dolerw, for Mr. Pryce Jones, Newtown. Mr. E. Parke, architect:—
John Morris, accepted at a valuation.
[No competition.]

For building Nos. 116 and 118, Green-street. Mr. W. Batten, architect. Messrs. Batstone Bros., surveyors:—

Gainsford	£2,748	0	0
Roberts	2,385	0	0
Forrest	2,187	0	0
Green	2,135	0	0
Hughes	2,119	0	0
Colson	2,080	0	0
Hawkins	1,959	0	0
Sabey & Son (accepted)	1,948	0	0

For painting, decorating, and repairs at the "House of Charity," Soho-square. Mr. C. Braun, surveyor:—

Warne & Son, Soho	£237	0	0
McIntosh, Langham-street	195	0	0
Bywaters, Regent-street	185	0	0
W. A. Rhodes, Marble Arch*	175	0	0

* Accepted.

Nor new story, brick additions, hot-water work, panelling, &c., at 23, Upper Berkeley-street, Hyde Park, for Dr. Beale. Mr. Edward S. Prior, architect:—

W. A. Rhodes, Marble Arch*	£980	0	0

* Accepted

SPECIAL NOTICE.—Lists of Tenders frequently reach us too late for insertion. They should be delivered at our Office, 46, Catherine-street, W.C., *not later than Four p.m.* on THURSDAYS.

TO CORRESPONDENTS.

H. B. & B.—H. H. & Co.—J. T. S.—H. W.—C. N. M'I. N.—W. C. C.—R. L. R.—G. B. G. (to move the house bodily, as before stated, is, we believe, the intention. For your P.S., what was done forty years ago is not of much interest, but recent work may be).

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PUBLISHER'S NOTICES.

THE INDEX and TITLE-PAGE for Volume XLVIII. (January to June, 1885) were given, as a Supplement, with the Number of July 11th.

A COLOURED TITLE-PAGE may be had, gratis, on personal application at the Office.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING-CASES (Cloth), with Strings, to hold a Month's Numbers, price 2s. each; also

THE FORTY-EIGHTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE, AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for Series of Trade Advertisements, also for Special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c. may be obtained on application to the Publisher.

SITUATIONS WANTED.

FOUR Lines (about THIRTY words) or under ..... 1s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to
DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

SPECIAL.—ALTERATIONS in STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same, must reach the Office before TEN o'clock on WEDNESDAY mornings.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office*, 46, Catherine-street, Covent-garden, W.C. *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum PREPAID. To all parts of Europe and America, 26s. per annum. To India, China, Ceylon, &c. 30s. per annum. Remittances payable to DOUGLAS FOURDRINIER, Publisher, No. 46, Catherine-street, W.C.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down.
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

Bath Stone.
ALL DESCRIPTIONS OF BEST QUALITY.
PICTOR & SONS,
BOX, WILTS. [ADVT.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK & SONS, Norton-sub-Hamdon, Ilminster, Somerset.—Agent, Mr. E. WILLIAMS, No. 16, Craven-street, Strand, W.C. [ADVT.

Doulting Free Stone
HAM HILL STONE,
BLUE LIAS LIME
(Ground or Lump),
For prices, &c., address S. & J. STAPLE, Quarry Owners, Stone and Lime Merchants, Stoke-under-Ham, Ilminster. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

EVERY DESCRIPTION OF SEASONED WOODS AND VENEERS IN EXTENSIVE QUANTITIES.
B. J. HUDSON & SONS,
Whitfield-street, W.
Store-street, W.C., and
Great Peter-street, S.W., London.
Telephone No. 3,654, and Private Wire connecting Business Premises.

MICHELMORE & REAP,
Manufacturers of

COLLINGE'S PATENT HINGES,
LEVER, SCREW, & BARREL BOLTS,
Self-Acting "FALL DOWN" GATE STOPS,
and IMPROVED GATE FITTINGS of every Description
36A, BOROUGH ROAD,
LONDON, S.E.
DISCOUNT TO BUILDERS.

GOLD AND SILVER MEDALS AT AMSTERDAM EXHIBITION.
IRON CISTERNS.
F. BRABY & CO.
LONDON, LIVERPOOL, GLASGOW.
VERY PROMPT SUPPLY.
LARGE STOCK READY.
CYLINDERS FOR HOT-WATER CIRCULATION.
Particulars on application. *Chief Office: 360, EUSTON ROAD, LONDON.*